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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

February, 94

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Aircraft observations

TABLE 3 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed ($m\ s^{-1}$)
7	RMS observation-background vector ($m\ s^{-1}$)

Radiosonde Observations

TABLES 4-6 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 4 and 5 and the weights used in the RMS values in TABLE 4.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic(COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 7 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 8 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 9 - 12 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $m\ s^{-1}$ (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
DZSB	ALL	MSLP	SUR	42	0	0	0.9	-4.0	4.1
D5NE	ALL	MSLP	SUR	24	0	0	2.8	5.4	6.1
ESBW	ALL	MSLP	SUR	21	0	0	6.5	3.3	7.3
NQST	ALL	MSLP	SUR	22	1	5	2.5	-4.5	5.2
UHUN	ALL	MSLP	SUR	23	0	0	1.4	5.2	5.4
UNWJ	ALL	MSLP	SUR	22	0	0	1.4	4.8	5.1
UYJL	ALL	MSLP	SUR	34	2	6	1.7	-5.2	5.5
UYNM	ALL	MSLP	SUR	23	1	4	6.5	1.0	6.6
VRUA4	ALL	MSLP	SUR	27	1	4	2.1	4.4	4.9
WCYQ	ALL	MSLP	SUR	33	1	3	3.3	-4.1	5.3
WTDK	ALL	MSLP	SUR	28	6	21	6.4	4.0	7.5
3EAY5	ALL	MSLP	SUR	21	0	0	2.0	-4.3	4.7
62132	ALL	MSLP	SUR	38	1	3	2.7	-4.6	5.3
71003	ALL	MSLP	SUR	111	111	100	0.0	0.0	0.0
74002	ALL	MSLP	SUR	520	94	18	2.8	-7.8	8.2
WIND SPEED									
C6CY7	ALL	SPEED	SUR	26	1	4	5.1	6.5	8.3
C6IN5	ALL	SPEED	SUR	46	2	4	7.4	10.1	12.6
C6IZ4	ALL	SPEED	SUR	53	0	0	3.7	5.3	6.5
C6KF2	ALL	SPEED	SUR	24	0	0	3.8	6.4	7.5
DJSD	ALL	SPEED	SUR	21	0	0	4.6	5.6	7.2
ELID3	ALL	SPEED	SUR	21	0	0	7.7	7.6	10.8
ELLE9	ALL	SPEED	SUR	71	0	0	5.3	10.1	11.4
FNIH	ALL	SPEED	SUR	65	1	2	4.6	7.4	8.7
FNRW	ALL	SPEED	SUR	30	0	0	5.6	5.4	7.8
JBCN	ALL	SPEED	SUR	31	0	0	2.8	5.0	5.7
KHJB	ALL	SPEED	SUR	20	0	0	4.8	5.5	7.3
LAON4	ALL	SPEED	SUR	32	1	3	4.7	5.3	7.1
NRUO	ALL	SPEED	SUR	25	0	0	5.2	5.1	7.3
P3LE5	ALL	SPEED	SUR	35	0	0	3.4	-5.5	6.5
SFPM	ALL	SPEED	SUR	56	0	0	5.8	5.2	7.8
SXZO	ALL	SPEED	SUR	22	0	0	2.6	5.3	5.9
WUBV	ALL	SPEED	SUR	35	0	0	4.9	5.2	7.2
Y4HM	ALL	SPEED	SUR	21	6	29	5.8	14.4	15.5
62141	ALL	SPEED	SUR	45	0	0	3.7	5.2	6.4
WIND DIRECTION									
CG2614	ALL	DIRN.	SUR	35	0	0	30.3	30.9	43.3
CG2959	ALL	DIRN.	SUR	20	0	0	46.8	-31.4	56.4
NRUO	ALL	DIRN.	SUR	25	0	0	86.7	-11.5	87.5
VRUM3	ALL	DIRN.	SUR	27	0	0	63.5	-30.4	70.4
21004	ALL	DIRN.	SUR	28	0	0	20.0	56.0	59.5
46013	ALL	DIRN.	SUR	69	0	0	30.2	32.6	44.4
46131	ALL	DIRN.	SUR	55	0	0	54.3	-50.1	73.8
46146	ALL	DIRN.	SUR	58	0	0	45.2	-44.2	63.3
46147	ALL	DIRN.	SUR	73	0	0	36.8	-30.1	47.6
46181	ALL	DIRN.	SUR	86	0	0	60.9	-31.2	68.5
46205	ALL	DIRN.	SUR	85	0	0	36.5	-31.6	48.3
52008	ALL	DIRN.	SUR	64	0	0	104.3	4.5	104.4

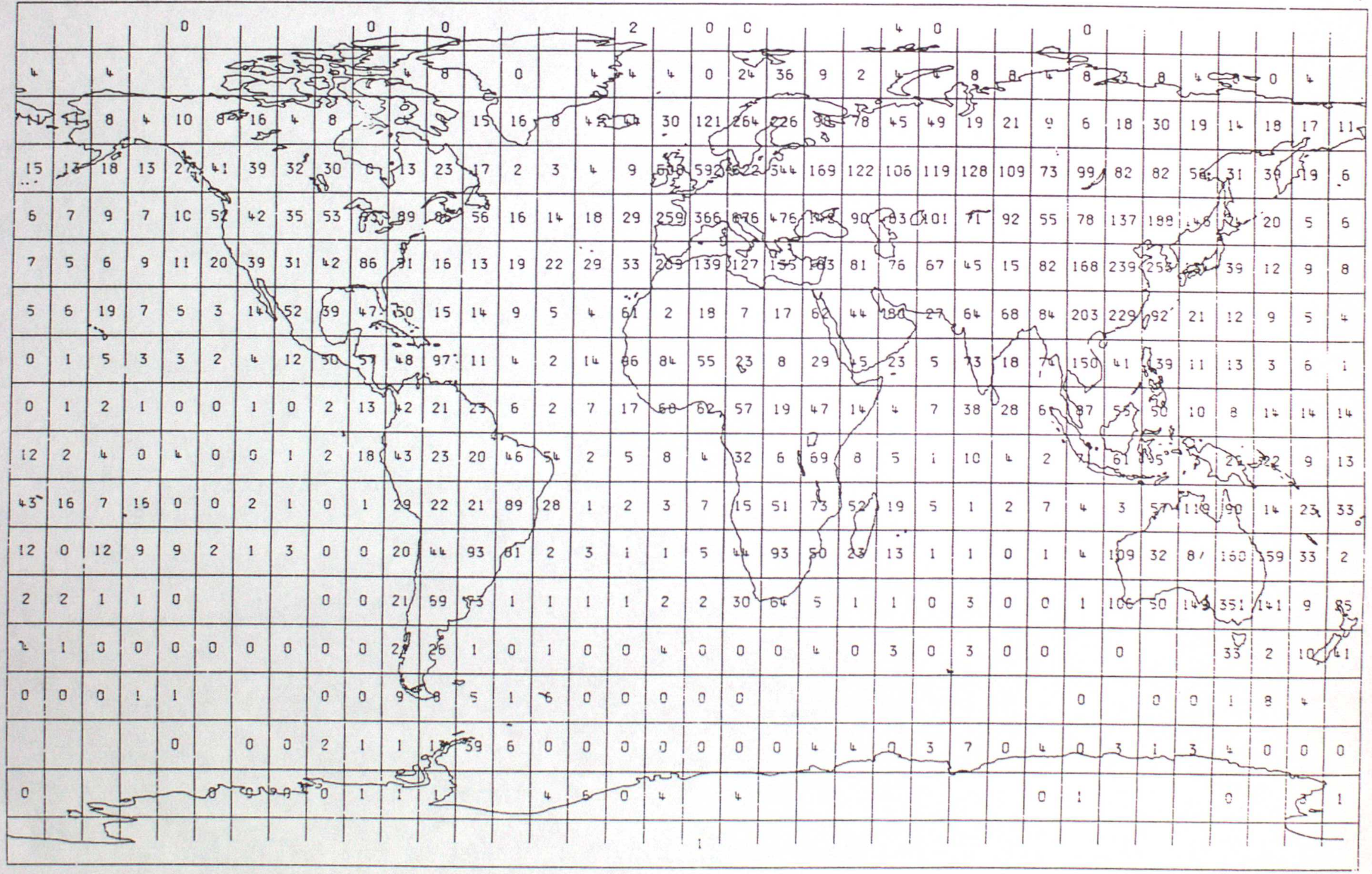
AVAILABILITY - SHIP/SYNOP - FEBRUARY 1994

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18633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12 0 12 9 9 2 1 3 0 0 20 44 93 81 2 3 1 1 5 44 93 50 23 13 1 1 0 1 4 109 32 87 160 159 33 2
2 2 1 1 0 0 0 21 69 73 1 1 1 1 2 2 30 64 5 1 1 0 3 0 0 1 106 50 149 351 141 9 85
2 1 0 0 0 0 0 0 0 0 27 26 1 0 1 0 0 4 0 0 0 4 0 3 0 3 0 0 0 33 2 10 41
0 0 0 1 1 0 0 9 8 5 1 6 0 0 0 0 0 0 0 0 1 8 4
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0 0 0 1 1 1 4 6 0 4 4 0 1 0 3 1
1

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1. |bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2. SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3. PGE $\geq$ 25.

```
IDENTIFIER  LAT.   LONG.  HOUR  ELEM   LEVEL NOBS  NGE  PGE    SD   BIAS    RMS

MEAN SEA LEVEL PRESSURE

17569      -32.1  -40.0  ALL   MSLP   SUR   248  248  100   0.0    0.0   0.0
31504       44.7  -63.6  ALL   MSLP   SUR    33    0    0   2.4   -4.6   5.2
52538       44.7  -63.6  ALL   MSLP   SUR    35    0    0   2.3   -4.5   5.1
52632       23.5  139.2  ALL   MSLP   SUR   204   15    7   6.7   -4.3   8.0

WIND SPEED

44742       53.5  -40.6  ALL   SPEED  SUR    45    4    9   4.4  -11.5  12.3

WIND DIRECTION

44742       53.5  -40.6  ALL   DIRN.  SUR    42    4   10  81.9   40.1  91.3
```

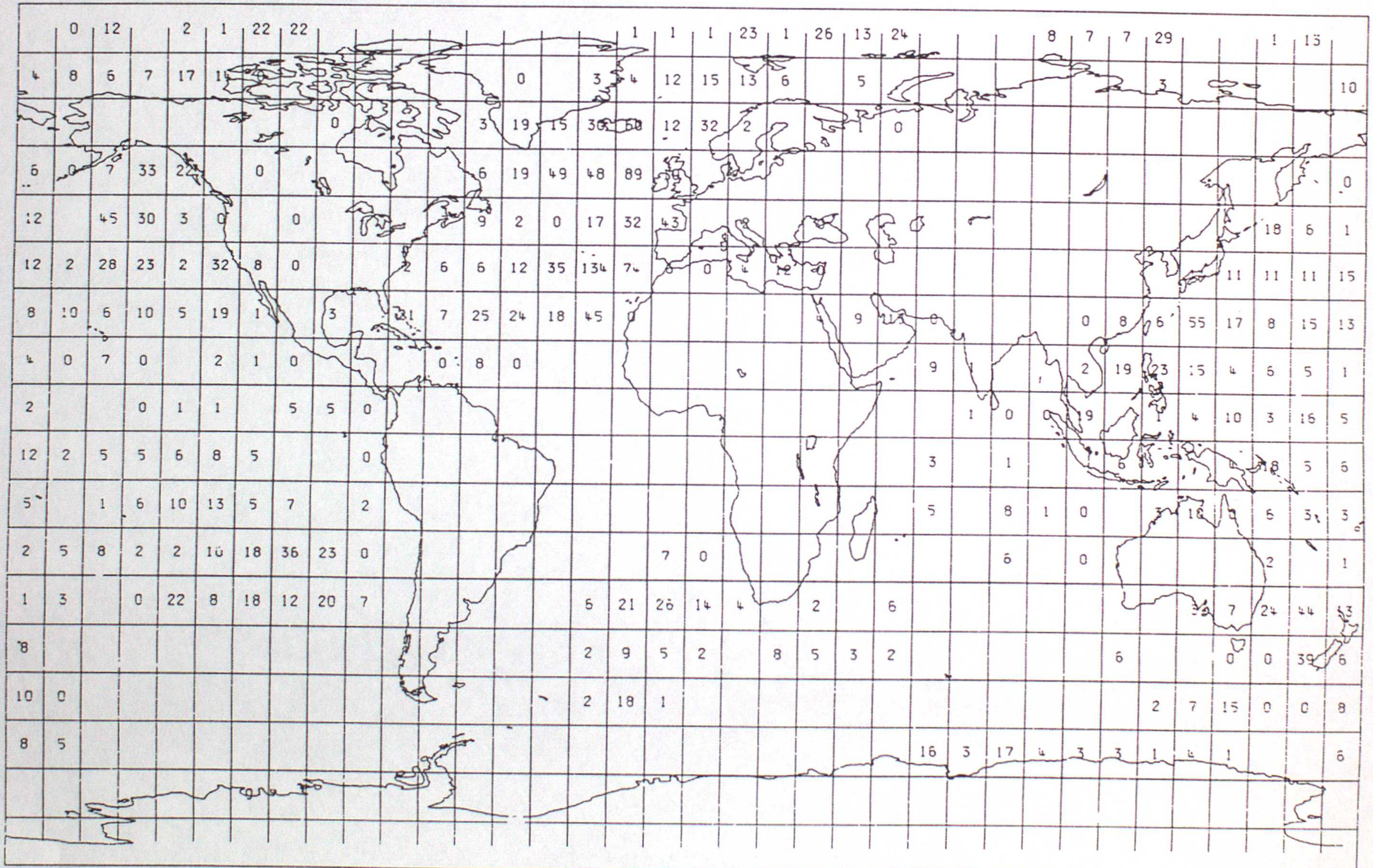
AVAILABILITY - DRIBU - FEBRUARY 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 2809

FIGURE 2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12 45 30 3 0 0 9 2 0 17 32 43 18 6 1
12 2 28 23 2 32 8 0 2 6 6 12 35 134 74 0 4 12 11 11 11 15
8 10 6 10 5 19 1 3 31 7 25 24 18 45 0 9 13 0 0 8 6 55 17 8 15 13
4 0 7 0 2 1 0 0 8 0 9 1 2 19 23 15 4 6 5 1
2 0 1 1 5 5 0 1 0 0 19 1 4 10 3 16 5
12 2 5 5 6 8 5 0 3 1 18 5 6
5 1 6 10 13 5 7 2 5 8 1 0 3 16 6 3 3
2 5 8 2 2 16 18 36 23 0 7 0 6 0 2 1
1 3 0 22 8 18 12 20 7 6 21 26 14 4 2 6 35 7 24 44 13
8 2 9 5 2 8 5 3 2 6 0 0 39 6
10 0 2 18 1 2 7 15 0 0 8
8 5 16 3 17 4 3 3 1 4 1 6

TABLE 3

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

NB:- DUE TO A TEMPORARY ARCHIVING PROBLEM STATISTICS FOR IDENTIFIERS UAL, AN, BA, CO, DL, KL, NW AND QF DO NOT INCLUDE DATA BETWEEN 1500 UTC AND 2100 UTC. THIS DATA IS ALSO EXCLUDED FROM FIGURES 4 TO 7.

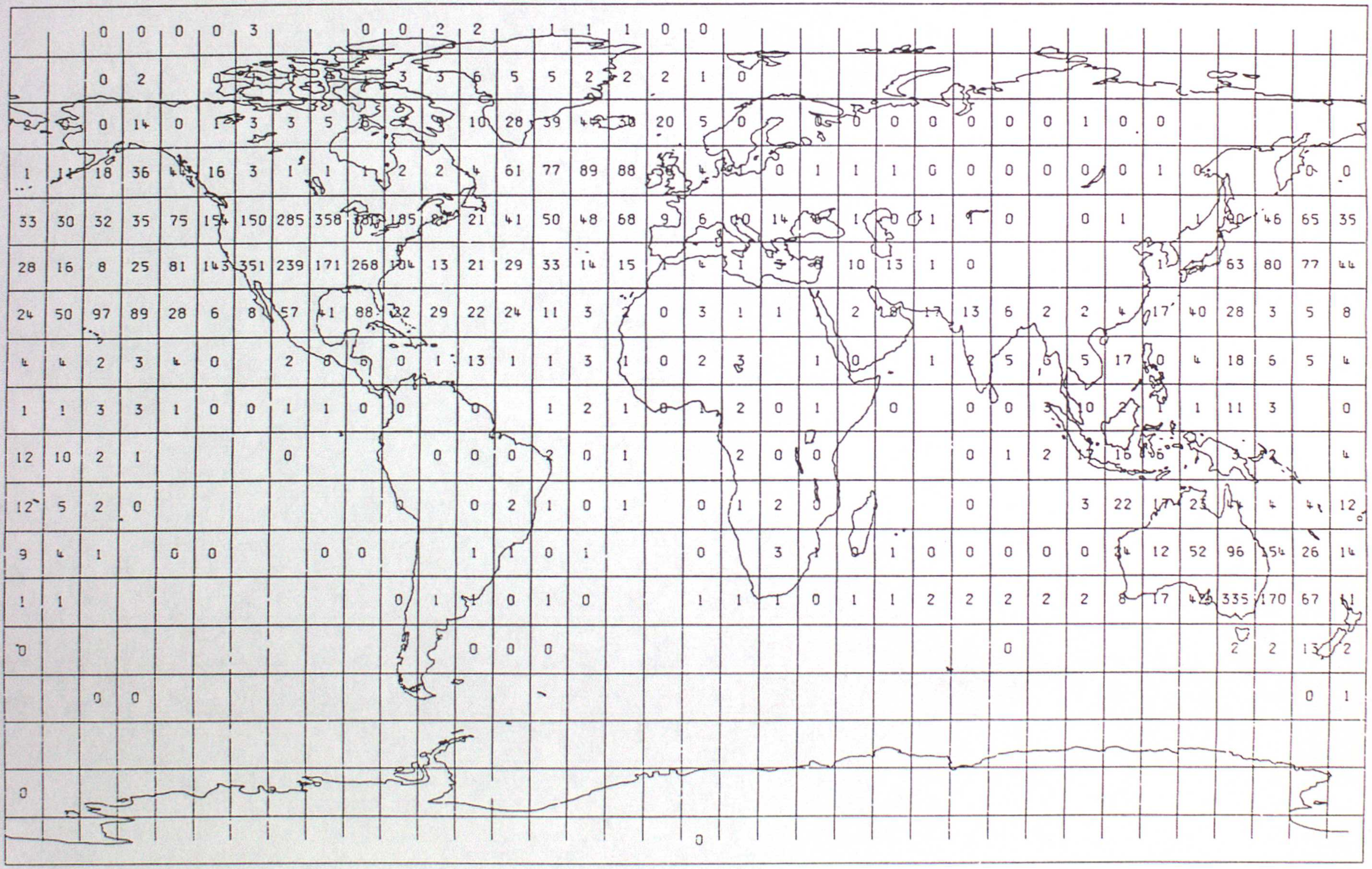
		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	112	0	4	1.7	-0.2	112	0	4	2	8.8	0.5
AAL	2761	1	2	2.0	0.1	2799	0	2	0	9.1	1.3
AAR	1241	1	2	2.4	-0.5	1242	0	2	0	9.0	1.3
ACA	688	1	3	2.5	-0.7	694	0	4	1	9.1	1.1
ACI	58	0	0	1.2	0.6	58	0	2	0	9.9	1.4
ADV	36	0	0	3.6	3.0	37	0	3	0	10.7	-0.5
AEA	113	0	4	2.4	-0.7	110	2	4	0	9.1	1.1
AEL	388	1	5	2.3	-0.6	396	0	4	0	9.7	0.8
AFL	51	8	100	4.9	2.9	51	0	100	0	17.1	-1.7
AFR	856	1	5	2.2	0.0	868	0	6	0	9.7	1.2
AJJ	35	0	3	3.1	-0.8	35	0	3	0	10.2	1.3
AMX	206	0	2	1.8	0.1	208	1	5	0	11.5	-0.3
ANA	669	1	1	2.5	0.5	669	0	1	0	8.8	1.9
ANZ	3045	1	2	1.8	-0.1	3020	0	2	1	8.5	1.5
AOM	648	3	4	2.5	0.3	656	0	2	0	8.8	1.0
ARG	29	0	0	1.6	0.5	29	0	0	0	8.6	0.9
ARP	317	0	5	1.9	0.2	312	0	6	1	9.0	1.8
AUA	30	0	100	2.0	-0.9	33	0	0	0	5.8	-0.3
AVA	331	0	4	2.2	-0.2	335	0	2	0	10.4	1.2
AVN	35	0	0	1.5	0.2	34	0	0	0	8.0	1.2
AVY	33	0	0	1.7	-1.0	34	0	3	0	9.5	0.7
AZA	263	0	3	2.5	0.1	266	0	5	0	11.7	1.8
BAL	69	0	12	2.4	-0.6	71	0	13	0	7.9	2.0
BAW	682	0	6	1.8	-0.1	700	0	6	0	8.1	0.9
BBB	31	0	29	2.5	-1.1	33	0	21	0	10.1	3.9
BWA	445	0	2	2.1	0.6	447	0	3	0	9.6	1.0
CAL	1484	1	4	2.5	0.0	1484	0	3	0	9.6	1.2
CCA	237	0	95	3.1	-0.6	239	0	10	0	12.6	1.0
CDN	1963	1	3	2.4	0.3	1967	0	3	1	8.7	1.5
CES	174	0	4	2.7	0.2	174	0	5	0	10.7	1.2
CFC	22	0	0	2.2	-0.6	23	0	0	0	8.7	3.0
CFG	646	0	2	2.3	-1.3	647	0	2	0	9.7	0.5
CKS	95	0	100	2.8	1.8	96	0	100	0	12.0	4.3
CLX	45	0	0	1.6	0.1	44	0	0	0	7.0	0.8
CMI	1439	1	3	2.4	0.9	1448	0	2	0	9.1	1.9
CMM	109	1	3	3.0	-0.5	111	0	5	0	12.0	2.6
COA	527	1	2	1.8	0.5	530	0	2	1	9.5	1.7
CPA	250	1	3	2.0	0.1	243	0	2	0	9.9	1.6
CRL	225	0	3	2.0	-0.4	226	0	3	0	8.8	0.9
CTM	49	0	20	3.1	-0.3	51	0	18	4	11.3	1.3
CUB	110	3	100	3.2	1.0	112	0	6	0	10.9	0.6
DAE	21	0	0	2.5	0.8	21	0	10	10	8.9	-1.0
DAL	3741	0	2	2.3	0.4	3619	0	2	0	9.0	1.4
DHL	136	3	4	3.3	1.2	139	0	4	0	12.3	3.5
DLH	3658	0	6	2.0	-0.3	3653	0	7	1	8.3	1.6
DOA	101	2	14	2.4	-0.1	104	1	13	0	9.0	0.2
EIA	224	0	6	2.1	-0.2	227	0	7	1	11.2	2.7
ELY	65	0	5	2.2	-0.5	68	0	3	0	7.1	1.4
EVA	1036	0	4	2.5	-0.3	1043	0	4	0	9.7	1.5
EWW	23	0	26	4.0	-1.4	23	0	13	0	11.2	3.8
FDX	977	1	4	2.3	0.6	977	0	3	0	8.4	1.4
FIN	286	1	3	1.8	0.3	289	0	3	0	8.4	1.3
FJI	374	2	2	1.6	0.7	374	0	2	0	9.6	1.9
FKJ	20	10	10	1.9	0.9	20	0	5	0	8.0	0.2
FMN	28	0	4	2.2	0.4	27	0	0	0	7.4	3.7
GAF	29	3	3	2.3	0.2	29	0	0	0	6.3	1.5
GIA	232	1	3	1.8	0.3	230	0	2	1	7.7	2.0
HAL	957	0	1	2.3	1.1	963	0	3	1	11.7	2.0
HLF	157	1	4	2.2	-1.1	159	0	3	0	11.0	-0.7
IBE	1285	1	12	2.1	0.0	1276	0	13	0	10.3	0.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
ICE	317	1	3	1.8	0.1	318	0	4	2	7.8	0.4
JAA	51	0	0	2.6	1.5	51	0	0	0	8.1	3.6
JAL	4566	0	1	2.4	0.4	4569	0	2	0	9.5	1.6
JAS	95	0	4	2.3	1.0	95	1	6	0	10.7	0.1
JAZ	143	0	1	2.6	1.5	143	0	1	0	9.0	1.1
KAL	2854	0	3	2.7	-0.3	2849	0	2	0	9.8	1.1
KLM	1347	0	1	2.1	0.4	1349	0	1	0	8.4	1.7
LDA	224	0	7	2.2	-1.4	226	0	7	0	8.2	0.3
LDI	222	0	2	2.5	-1.6	226	0	1	0	8.3	0.7
LIB	157	1	3	1.6	-0.6	158	0	4	0	8.0	1.6
LOT	229	0	0	1.8	0.1	234	0	2	0	8.3	1.0
LTU	609	1	2	2.0	0.1	589	0	3	0	9.0	1.6
LWD	65	0	2	2.2	-0.2	67	0	3	0	11.2	3.5
MAH	75	0	1	1.9	-0.6	74	0	1	0	6.8	0.9
MAS	257	0	2	2.3	0.1	258	0	5	1	9.6	1.2
MAU	30	3	3	1.4	0.7	30	0	0	0	7.5	2.2
MDA	87	0	2	3.6	2.4	87	0	3	0	8.5	2.0
MPH	333	0	3	2.0	0.2	337	0	3	0	9.3	1.0
MRS	33	3	15	2.0	0.5	34	0	21	0	18.6	8.8
NAL	101	3	1	1.7	0.6	98	0	2	2	7.8	0.0
NAT	20	0	5	1.5	-0.7	20	0	5	0	9.1	-1.8
NCA	571	0	2	2.1	0.0	568	0	3	1	8.8	0.7
NGA	99	1	3	2.0	0.7	96	0	6	3	10.4	0.0
NWA	9319	1	2	2.5	0.7	9329	0	3	0	9.8	1.5
PAL	930	1	3	2.4	-0.1	934	0	2	1	10.2	1.5
PAO	358	1	3	1.4	0.4	358	0	3	1	8.2	1.8
QFA	1739	1	2	1.7	0.3	1724	0	3	2	7.7	1.2
RAF	173	0	6	3.2	0.9	168	0	3	0	10.4	1.6
RBA	31	3	3	1.2	0.8	32	0	0	0	8.3	1.0
RKA	49	0	2	1.7	0.6	51	0	2	0	9.3	2.1
RON	59	0	0	1.4	0.7	59	0	0	0	6.6	1.4
RRR	153	3	24	2.9	-0.1	148	1	20	0	10.3	1.0
SAA	214	0	3	1.9	-0.7	214	0	4	1	10.2	1.9
SAS	1424	0	1	1.8	-0.2	1419	0	2	1	7.7	0.8
SIA	1093	1	3	2.4	-0.4	1091	0	3	1	9.3	1.7
SJM	51	0	6	2.6	0.1	51	0	6	0	13.2	1.5
SOL	34	0	0	1.2	0.5	34	0	3	0	7.5	2.0
SPP	95	0	1	2.1	-0.6	92	0	2	0	10.4	1.8
SVA	61	2	2	2.3	0.2	72	0	3	1	9.7	1.6
SWR	236	1	7	2.3	0.3	227	0	6	0	9.6	1.3
TAP	426	1	4	2.4	-0.6	427	0	6	0	11.7	1.3
THA	250	1	3	2.6	-0.8	248	0	6	1	10.0	0.6
TOW	51	4	4	1.8	0.5	59	0	0	0	9.7	2.4
TWA	737	0	2	2.2	0.4	744	0	2	0	9.4	1.2
UAL	47725	1	4	1.8	0.0	47718	0	2	0	8.7	1.2
ULE	82	0	0	1.9	-0.2	84	0	1	0	9.3	1.2
UPS	636	0	11	2.3	-0.3	650	0	12	0	10.0	1.7
VIA	385	0	5	1.7	0.0	388	0	6	1	8.6	0.9
VRB	25	4	8	1.8	1.0	24	0	13	0	14.5	-2.1
VRG	22	5	14	2.2	0.1	23	0	4	0	7.4	2.1
VSP	108	0	1	2.9	0.9	108	0	2	0	10.1	0.3
WOA	57	2	7	1.6	0.1	59	0	10	0	10.0	3.2
AN	18092	0	1	1.5	0.3	17891	0	1	0	8.9	2.0
BA	4739	0	6	1.9	0.2	4713	1	6	0	10.8	2.5
DL	447	1	98	3.1	0.8	447	77	99	0	46.9	-0.6
KL	1523	0	6	1.5	0.4	1523	0	1	0	8.4	1.5
LH	493	1	3	2.3	-0.4	479	0	6	2	10.0	1.9
NW	26158	0	2	1.8	0.3	26119	0	1	0	8.2	1.2
QF	6697	0	1	1.5	0.4	6681	0	1	0	8.5	1.0

IDENT.	TEMPERATURE N.REP.	PG	PR	RMS	BIAS	WIND N.REP.	PG	PR	PC	RMS	BIAS
M	134	4	97	2.7	0.7	149	0	5	0	12.1	3.4
N	360	2	5	2.8	0.7	378	0	5	0	10.6	1.3

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA
FEBRUARY 1994
OBSERVATIONS WITH RMSVW DIFFERENCE 60 MPS EXCLUDED

FIGURE 3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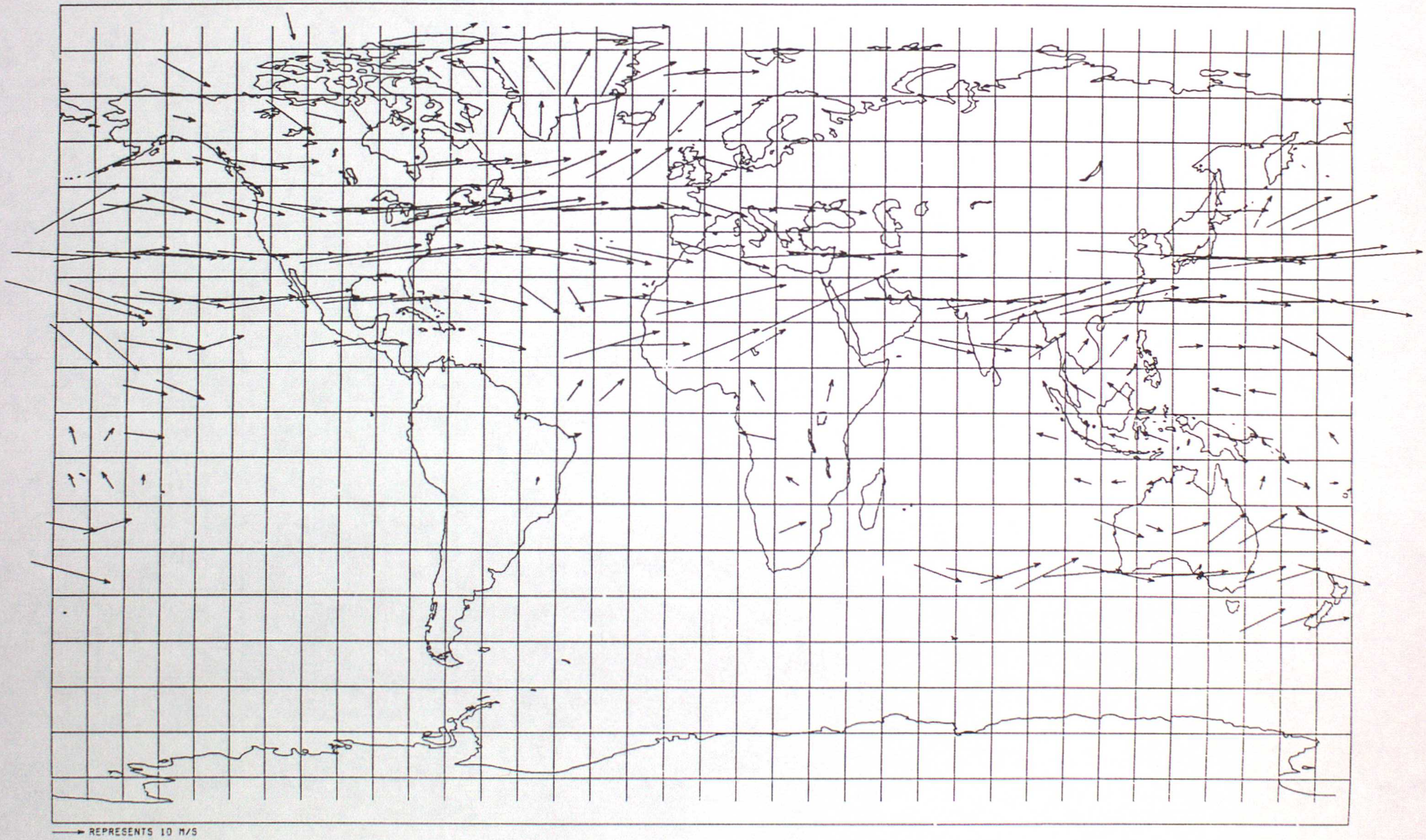
33 30 32 35 75 154 150 285 358 380 185 8 21 41 50 48 68 9 6 0 14 1 0 0 1 1 0 0 1 1 90 46 65 35
28 16 8 25 81 143 351 239 171 268 104 13 21 29 33 14 15 1 4 1 3 8 10 13 1 0 1 63 80 77 44
24 50 97 89 28 6 8 57 41 88 32 29 22 24 11 3 2 0 3 1 1 2 8 17 13 6 2 2 4 17 40 28 3 5 8
4 4 2 3 4 0 2 8 0 0 1 13 1 1 3 1 0 2 3 1 0 1 2 5 6 5 17 0 4 18 6 5 4
1 1 3 3 1 0 0 1 1 0 0 0 1 2 1 0 1 2 0 1 0 0 0 3 10 2 1 1 11 3 0
12 10 2 1 0 0 0 0 2 0 1 2 0 0 0 1 2 17 16 36 3 2 4
12 5 2 0 0 0 2 1 0 1 0 1 2 0 0 3 22 17 23 4 4 4 12
9 4 1 0 0 0 0 1 1 0 1 0 3 1 0 1 0 0 0 0 0 34 12 52 96 154 26 14
1 1 0 1 1 0 1 0 1 1 1 0 1 1 2 2 2 2 2 8 17 425 335 170 67 11
0 0 0 0 0 2 2 13 2
0 0 0 1
0
0

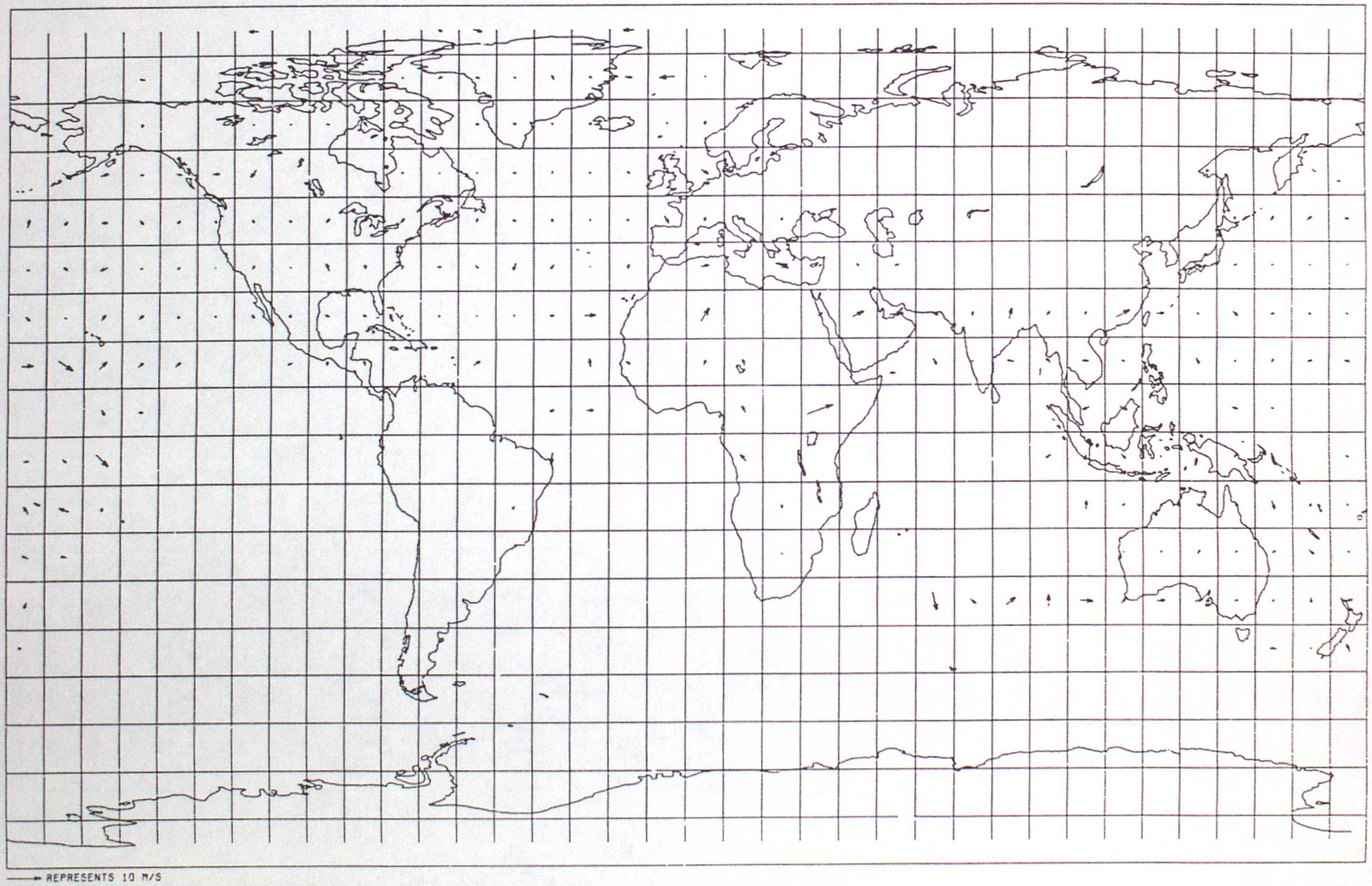
AIRCRAFT MEAN WINDS BETWEEN 7C AND 500 HPA
FEBRUARY 1994
OBSERVATIONS WITH RMSVW DIFFERENCE 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE 30 OBS ARE PRESENT

FIGURE 4

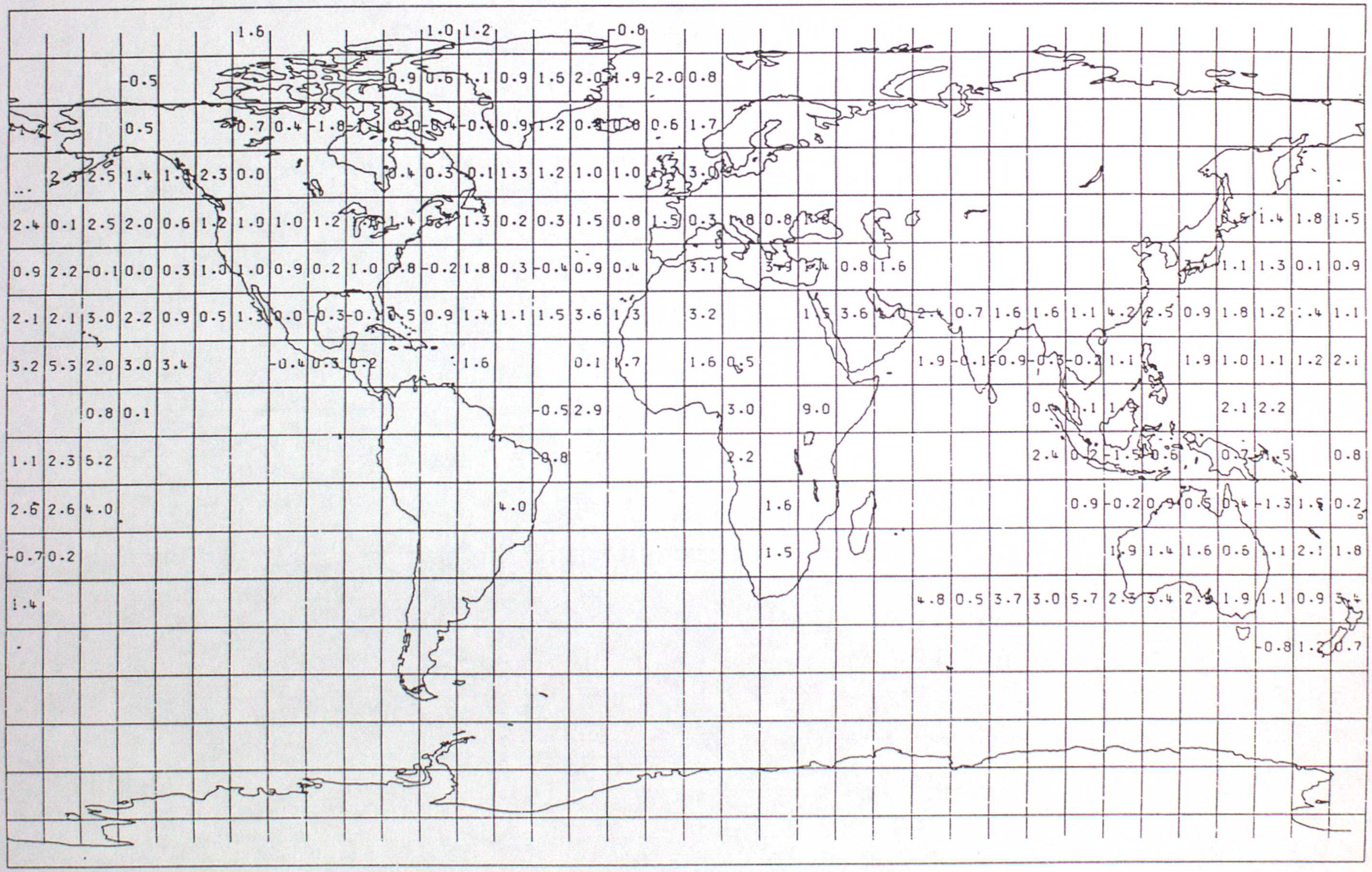


AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
FEBRUARY 1994
OBSERVATIONS WITH RMSVW DIFFERENCE 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE 30 OBS ARE PRESENT

FIGURE 5



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
FEBRUARY 1994
OBSERVATIONS WITH RMSVW DIFFERENCE 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE 30 OBS ARE PRESENT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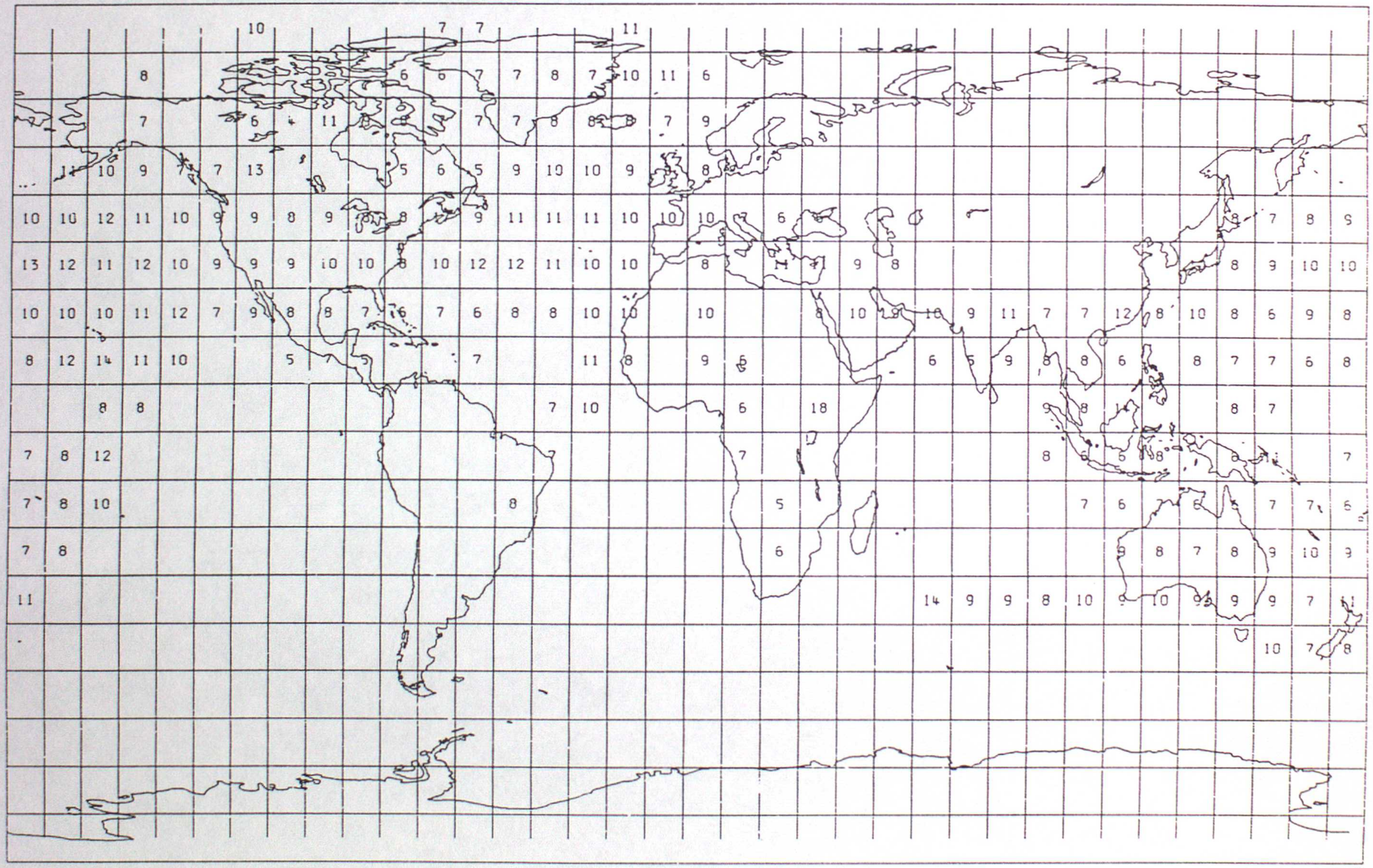
-0.5 0.9 0.6 1.1 0.9 1.6 2.0 1.9 -2.0 0.8
0.5 0.7 0.4 -1.8 -0.4 -0.4 0.9 1.2 0.3 0.8 0.6 1.7
2.3 2.5 1.4 1.8 2.3 0.0 0.4 0.3 0.1 1.3 1.2 1.0 1.0 3.0
2.4 0.1 2.5 2.0 0.6 1.2 1.0 1.0 1.2 1.8 1.4 1.3 0.2 0.3 1.5 0.8 1.5 0.3 1.8 0.8 1.8 1.4 1.8 1.5
0.9 2.2 -0.1 0.0 0.3 1.0 1.0 0.9 0.2 1.0 0.8 -0.2 1.8 0.3 -0.4 0.9 0.4 3.1 3.9 1.4 0.8 1.6 1.1 1.3 0.1 0.9
2.1 2.1 3.0 2.2 0.9 0.5 1.3 0.0 -0.3 -0.1 0.5 0.9 1.4 1.1 1.5 3.6 1.3 3.2 1.5 3.6 2.4 0.7 1.6 1.6 1.1 4.2 2.5 0.9 1.8 1.2 1.4 1.1
3.2 5.5 2.0 3.0 3.4 -0.4 0.3 0.2 1.6 0.1 1.7 1.6 0.5 1.9 -0.1 0.9 -0.3 -0.2 1.1 1.9 1.0 1.1 1.2 2.1
0.8 0.1 -0.5 2.9 3.0 9.0 0.4 1.1 1.4 2.1 2.2
1.1 2.3 5.2 -0.8 2.2 2.4 0.2 -1.5 0.6 0.7 1.5 0.8
2.6 2.6 4.0 4.0 1.6 0.9 -0.2 0.9 0.5 0.4 -1.3 1.5 0.2
-0.7 0.2 1.5 1.9 1.4 1.6 0.5 1.1 2.1 1.8
1.4 4.8 0.5 3.7 3.0 5.7 2.3 3.4 2.9 1.9 1.1 0.9 3.4
-0.8 1.2 0.7

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
FEBRUARY 1994
OBSERVATIONS WITH RMSVW DIFFERENCE 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE 30 OBS ARE PRESENT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7 6 11 8 7 7 8 8 7 9
11 10 9 7 13 5 6 5 9 10 10 9 8
10 10 12 11 10 9 9 8 9 8 8 9 11 11 11 10 10 10 7 6 8 7 8 9
13 12 11 12 10 9 9 9 10 10 8 10 12 12 11 10 10 8 11 9 8 8 9 10 10
10 10 10 11 12 7 9 8 8 7 6 7 6 8 8 10 10 10 8 10 10 10 9 11 7 7 12 8 10 8 6 9 8
8 12 14 11 10 5 7 5 7 11 8 9 6 6 5 9 8 8 6 8 7 7 6 8
8 8 7 10 6 18 9 8 14 8 7
7 8 12 7 7 8 6 6 8 8 7
7 8 10 8 5 7 6 7 6 5 7 7 6
7 8 6 9 8 7 8 9 10 9
11 14 9 9 8 10 9 10 9 9 9 7 11
10 7 8

TABLE 4

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	:≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
26702	12	Z	250	55/ 21	13	0	63.9	58.5	86.7	7
41594	00	Z	250	32/ 73	10	0	80.6	-106.7	133.7	7
41977	00	Z	200	22/ 92	19	0	39.6	-108.2	115.2	7
42182	00	Z	30	29/ 77	15	0	155.1	109.9	190.1	4
42182	12	Z	30	29/ 77	11	1	168.6	210.9	270.0	5
42314	00	Z	150	27/ 95	9	0	140.4	-6.3	140.5	5
42314	12	Z	200	27/ 95	10	1	65.3	-93.6	114.1	5
42339	00	Z	200	26/ 73	21	1	87.5	-70.3	112.3	9
42339	12	Z	200	26/ 73	13	1	120.1	-19.5	121.7	5
42361	00	Z	70	26/ 78	8	3	176.0	41.6	180.8	6
42361	12	Z	250	26/ 78	12	0	68.0	-61.4	91.7	6
42379	00	Z	50	27/ 83	14	0	147.1	-67.0	161.6	5
42379	12	Z	100	27/ 83	14	1	149.1	-6.1	149.2	6
42397	00	Z	250	27/ 88	15	0	76.2	-52.9	92.8	4
42397	12	Z	500	27/ 88	20	0	22.6	-53.9	58.5	5
42410	00	Z	30	26/ 92	15	1	257.1	18.0	257.7	7
42410	12	Z	70	26/ 92	13	0	180.2	-49.4	186.8	6
42492	00	Z	70	26/ 85	10	0	156.3	12.8	156.9	6
42647	12	Z	70	23/ 73	8	2	100.4	125.0	160.3	5
42809	00	Z	100	23/ 88	21	1	110.3	-64.2	127.6	5
42867	00	Z	70	21/ 79	16	1	184.5	-59.4	193.8	7
42875	00	Z	50	21/ 82	9	2	192.1	-180.4	263.6	4
42875	12	Z	50	21/ 82	11	0	203.1	-55.9	210.7	4
42971	00	Z	30	20/ 86	16	1	115.7	167.9	203.9	5
42971	12	Z	200	20/ 86	17	1	104.4	-40.9	112.2	6
43003	00	Z	50	19/ 73	10	3	135.6	-213.5	252.9	9
43003	12	Z	100	19/ 73	12	2	126.1	-1.8	126.1	4
43014	00	Z	100	20/ 75	14	1	146.1	17.8	147.1	9
43014	12	Z	50	20/ 75	7	3	151.5	242.6	286.0	9
43128	00	Z	150	17/ 78	20	0	116.3	-94.5	149.9	7
43128	12	Z	150	17/ 78	18	0	114.4	-7.4	114.6	5
43185	00	Z	200	16/ 81	18	1	109.3	-39.0	116.0	6
43185	12	Z	200	16/ 81	21	0	86.3	34.2	92.9	4
43192	00	Z	100	15/ 74	14	0	128.8	-69.9	146.5	4
43279	00	Z	70	13/ 80	13	1	177.2	-111.8	209.5	7
43279	12	Z	50	13/ 80	20	0	194.5	33.6	197.4	7
43285	00	Z	200	13/ 75	17	1	95.8	-85.7	128.6	7
43285	12	Z	70	13/ 75	16	0	170.6	64.9	182.6	5
43311	12	Z	150	11/ 73	9	1	121.3	47.8	130.4	6
43346	00	Z	70	11/ 80	12	0	168.5	-63.7	180.2	6
43346	12	Z	30	11/ 80	8	2	236.9	138.0	274.2	8
43353	00	Z	200	10/ 76	21	0	93.9	-50.4	106.5	5
43353	12	Z	100	10/ 76	15	1	141.7	25.5	144.0	7
43369	00	Z	70	8/ 73	13	0	189.6	5.2	189.7	8
43369	12	Z	70	8/ 73	8	2	197.0	46.8	202.5	6
43371	00	Z	50	8/ 77	12	2	126.2	-223.7	256.9	9
43371	12	Z	150	8/ 77	17	0	127.4	-6.6	127.5	7
44288	00	Z	250	46/ 103	11	2	57.0	140.6	151.7	6
48820	00	Z	100	21/ 106	20	2	35.5	206.1	209.1	4
48820	12	Z	100	21/ 106	22	1	86.7	183.7	203.1	4
57679	00	Z	100	28/ 113	20	1	40.8	115.5	122.5	5
57679	12	Z	100	28/ 113	16	0	38.4	148.9	153.8	7
57972	00	Z	100	26/ 113	25	0	39.0	104.6	111.7	4
57972	12	Z	100	26/ 113	21	0	37.0	118.3	124.0	5
61831	12	Z	500	10/ -14	3	7	74.2	-94.0	119.8	5
62306	12	Z	100	31/ 27	7	10	28.9	242.7	244.4	7
62378	12	Z	100	30/ 31	18	3	45.6	219.5	224.2	5
63450	12	Z	700	9/ 39	24	0	9.3	39.8	40.9	4
67774	00	Z	30	-18/ 31	10	2	25.3	180.8	182.6	4
70414	00	Z	1000	53/ 174	10	0	37.2	13.3	39.5	7

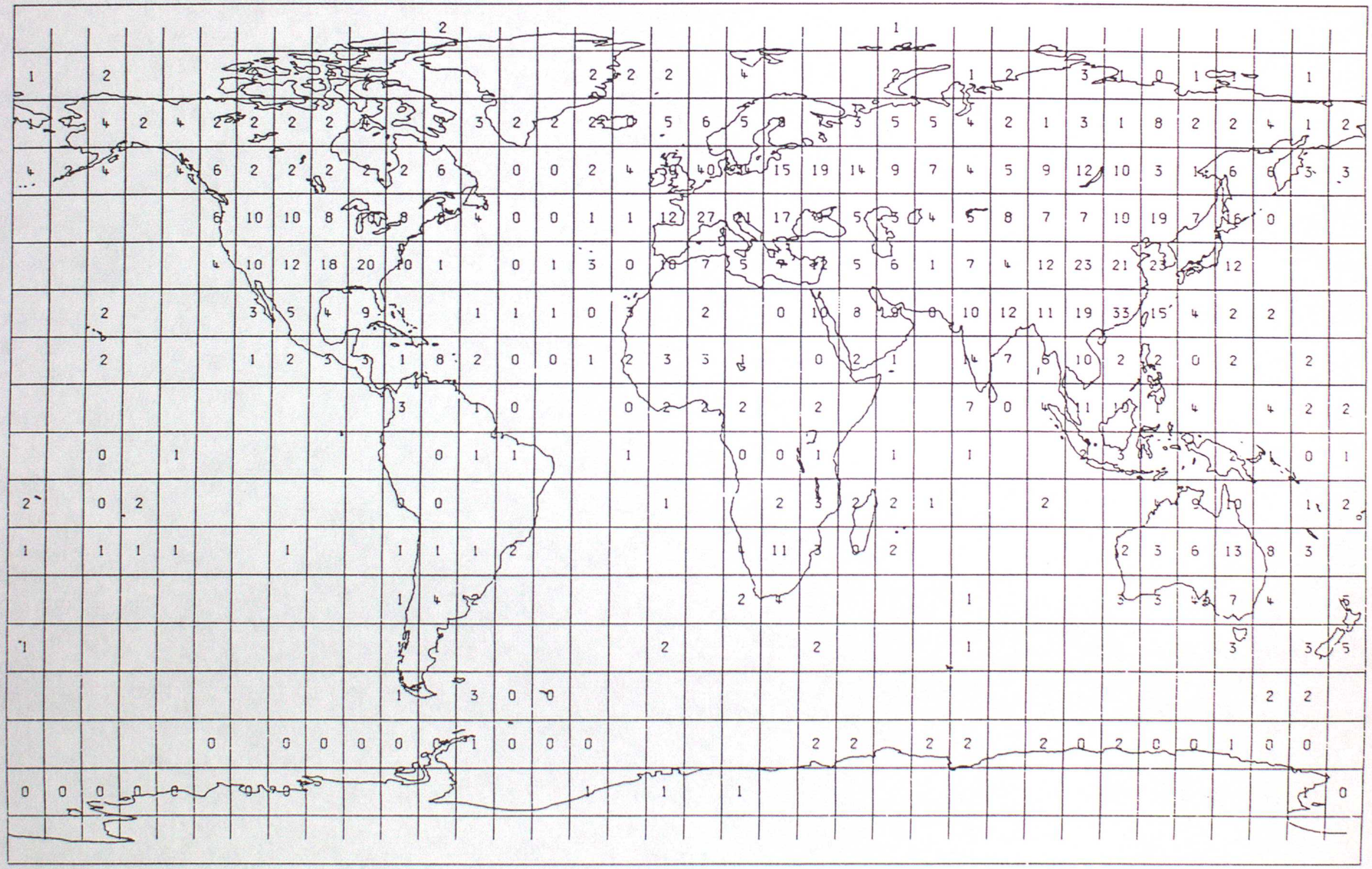
WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
71082	12	Z	500	82/ -62	25	1	24.2	41.6	48.1	5
97014	00	Z	100	2/ 125	19	0	66.2	-124.3	140.8	6

AVAILABILITY - TEMP - 500 HPA GEOPOTENTIAL - FEBRUARY 1994 FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1447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6 10 10 8 8 8 4 0 0 1 1 12 27 21 17 8 5 5 4 5 8 7 7 10 19 7 6 0
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2 3 5 4 9 1 1 1 1 0 3 2 0 10 8 19 0 10 12 11 19 33 15 4 2 2
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1 3 0 0 2 2
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TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :% REJ :Percentage of observations rejected by quality control at level shown during period.
- :UBIAS, VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
- :RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
- :NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA :$\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
40265	00	V	200	32/ 36	15	0	0	-12.6	4.1	15.5	1
40265	12	V	250	32/ 36	10	0	10	-19.4	-0.4	22.0	2
42182	00	V	150	29/ 77	22	1	17	4.5	-3.3	17.8	3
42182	12	V	100	29/ 77	20	1	42	5.5	-0.3	18.3	3
42339	00	V	200	26/ 73	23	0	21	-24.3	3.4	27.2	5
42339	12	V	150	26/ 73	12	0	50	-29.2	0.8	30.4	4
42361	00	V	250	26/ 78	10	0	10	13.2	-1.1	20.7	2
42369	00	V	250	27/ 81	19	0	5	-8.1	0.1	17.3	1
42369	12	V	300	27/ 81	17	0	29	-16.4	-0.5	24.3	3
42379	00	V	300	27/ 83	15	0	6	-4.1	1.3	17.4	3
42379	12	V	100	27/ 83	15	0	0	9.1	-0.6	19.5	2
42397	00	V	250	27/ 88	13	0	7	-15.5	3.8	18.1	2
42397	12	V	250	27/ 88	10	0	10	-19.0	6.1	20.7	2
42410	00	V	300	26/ 92	11	0	9	-3.6	2.8	18.8	1
42410	12	V	300	26/ 92	14	0	7	-1.9	4.8	17.5	1
42701	00	V	200	23/ 85	10	0	10	9.7	2.5	16.0	1
42809	00	V	150	23/ 88	23	0	8	-2.5	-1.9	15.4	1
42809	12	V	100	23/ 88	17	0	11	1.5	0.4	15.9	1
42867	00	V	200	21/ 79	14	0	14	7.3	13.5	15.4	1
42875	00	V	150	21/ 82	10	0	50	11.0	9.5	23.7	3
43014	00	V	100	20/ 75	10	2	75	0.8	1.6	22.9	4
43014	12	V	150	20/ 75	9	1	60	13.4	-4.0	27.3	2
54374	00	V	150	42/ 127	14	0	14	6.4	-0.8	15.6	1
54374	12	V	250	42/ 127	16	0	12	-2.5	0.1	15.2	1
56691	00	V	100	27/ 104	15	1	50	12.8	4.4	18.9	2
56691	12	V	150	27/ 104	20	0	20	3.5	9.2	20.9	3
58968	12	V	300	25/ 122	27	0	18	5.6	-1.8	23.1	2
97014	00	V	150	2/ 125	21	1	27	-10.2	10.1	19.0	2

AVAILABILITY - TEMP/PILOT - 300 HPA WIND - FEBRUARY 1994

FIGURE 9

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1256

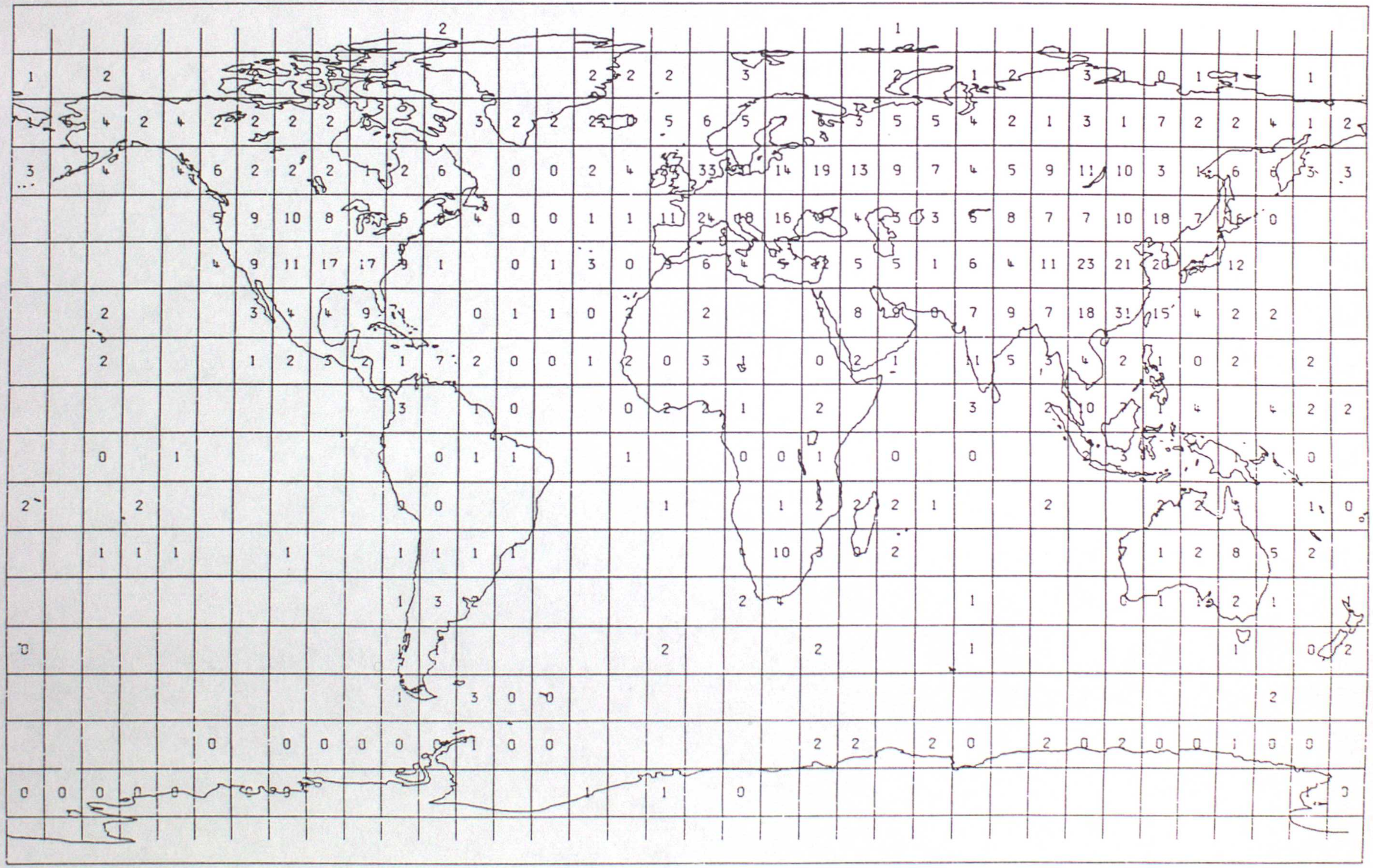

2 1
1 2 2 2 2 3 2 1 2 3 1 0 1 1
6 4 2 4 2 2 2 2 3 2 2 2 5 6 5 3 5 5 4 2 1 3 1 7 2 2 4 1 2
3 3 4 4 6 2 2 2 1 2 6 0 0 2 4 33 14 19 13 9 7 4 5 9 11 10 3 1 6 6 3 3
5 9 10 8 6 4 0 0 1 1 11 24 18 16 4 3 3 5 8 7 7 10 18 7 6 0
4 9 11 17 17 3 1 0 1 3 0 5 6 4 5 42 5 5 1 6 4 11 23 21 20 12
2 3 4 4 9 11 0 1 1 0 2 2 7 8 19 0 7 9 7 18 31 15 4 2 2
2 1 2 3 2 1 7 2 0 0 1 2 0 3 1 0 2 1 11 5 3 4 2 1 0 2 2
3 1 0 0 2 2 1 2 3 2 10 7 1 4 4 2 2
0 1 0 1 1 1 0 0 1 0 0 2 3 3 0
2 2 0 0 1 1 2 2 2 1 2 2 2 1 0
1 1 1 1 1 1 1 1 4 10 3 0 2 7 1 2 8 5 2
1 3 2 2 4 1 0 1 1 2 1 1
0 1 2 2 1 1 0 2
1 3 0 0 2
0 0 0 0 0 0 1 1 0 0 2 2 2 0 2 0 2 0 0 1 0 0
0 0 0 0 0 1 1 0 0

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS $\geq$ 5, and

ABSOLUTE BIAS $\geq$ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
03130	12	DD	55/ -5	9	11.4	1.7	13.5
24641	00	DD	64/ 122	23	11.3	3.5	9.9
24641	12	DD	64/ 122	24	11.8	2.8	9.1
31873	12	DD	46/ 134	24	10.6	6.4	12.2
42867	00	DD	21/ 79	15	-13.0	2.4	9.7
48407	00	DD	15/ 105	16	-15.8	5.3	18.5
48407	12	DD	15/ 105	18	-10.7	8.3	24.3
54857	00	DD	36/ 120	27	10.2	2.5	12.7
60571	12	DD	32/ -2	15	10.1	5.0	11.9
60630	12	DD	27/ 2	13	13.7	6.2	11.8
68110	00	DD	-23/ 17	17	-14.3	6.1	25.8
68110	12	DD	-23/ 17	16	-17.3	4.8	27.8
71072	12	DD	76/-119	24	10.5	8.5	18.1
87155	12	DD	-27/ -59	21	17.1	9.2	26.9
89022	12	DD	-75/ -27	14	12.6	8.4	22.1

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

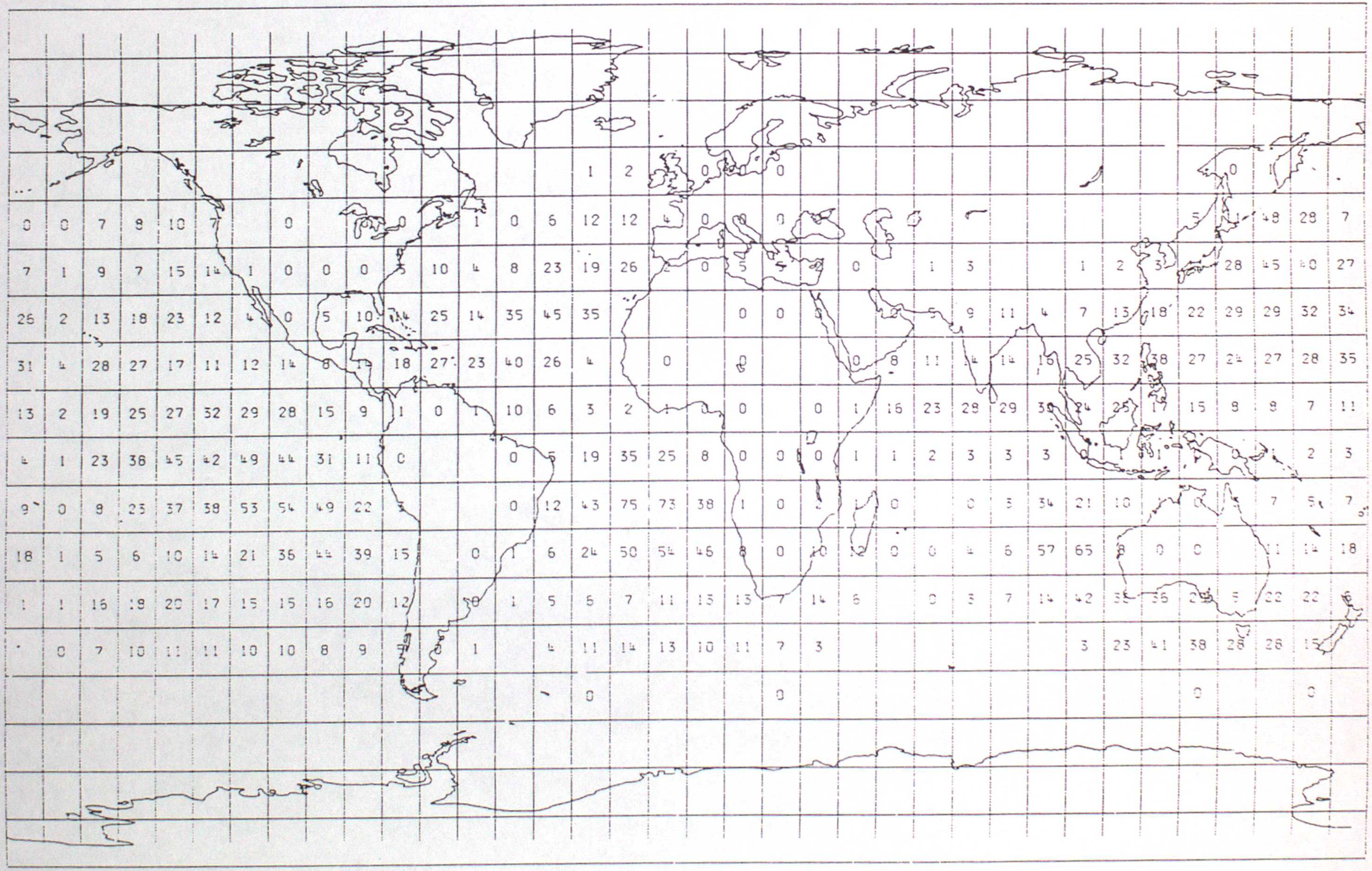
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

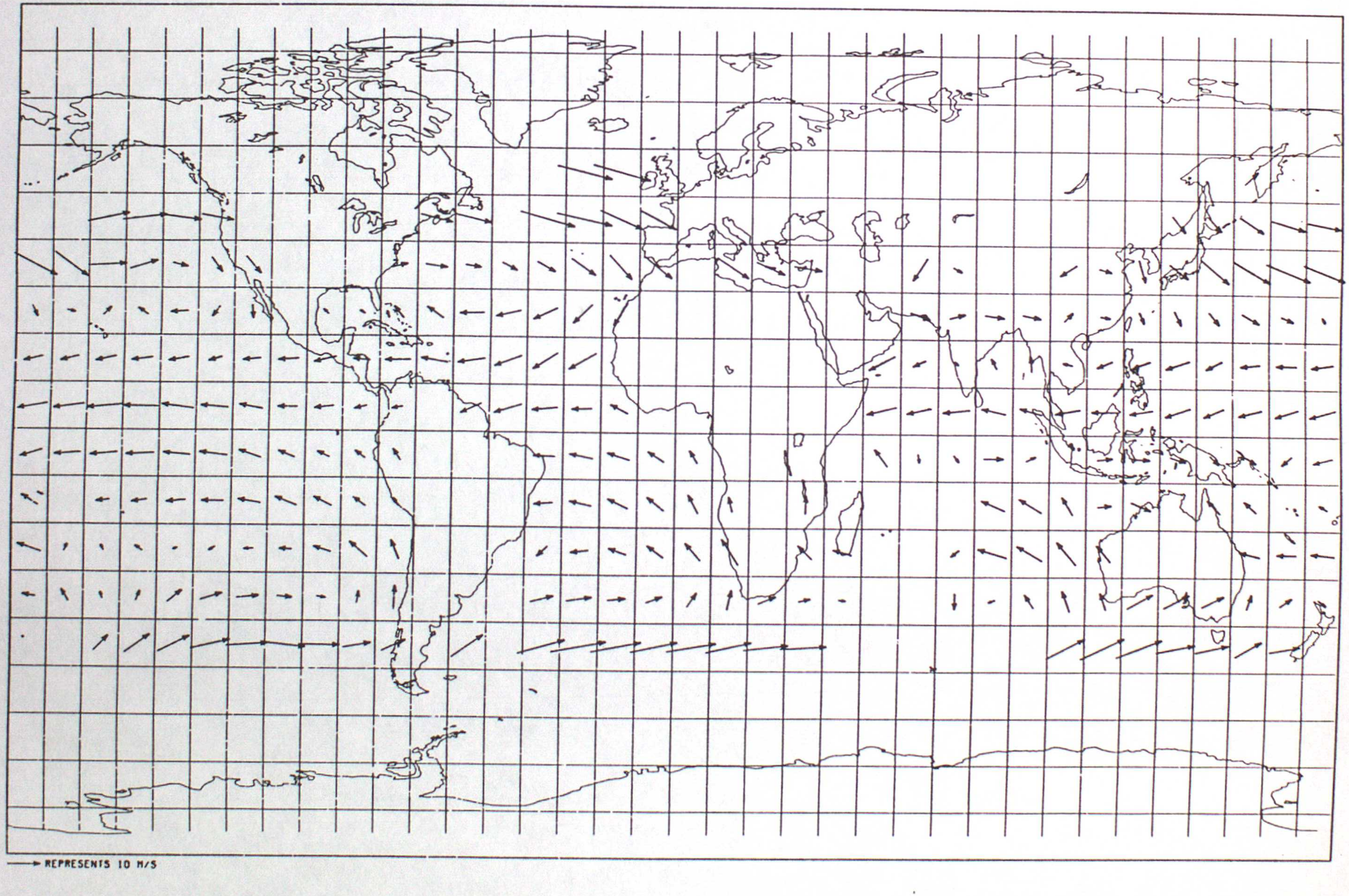
:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
FEBRUARY 1994



SATOB VECTOR MEAN WINDS BETWEEN 701-1000 HPA
FEBRUARY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

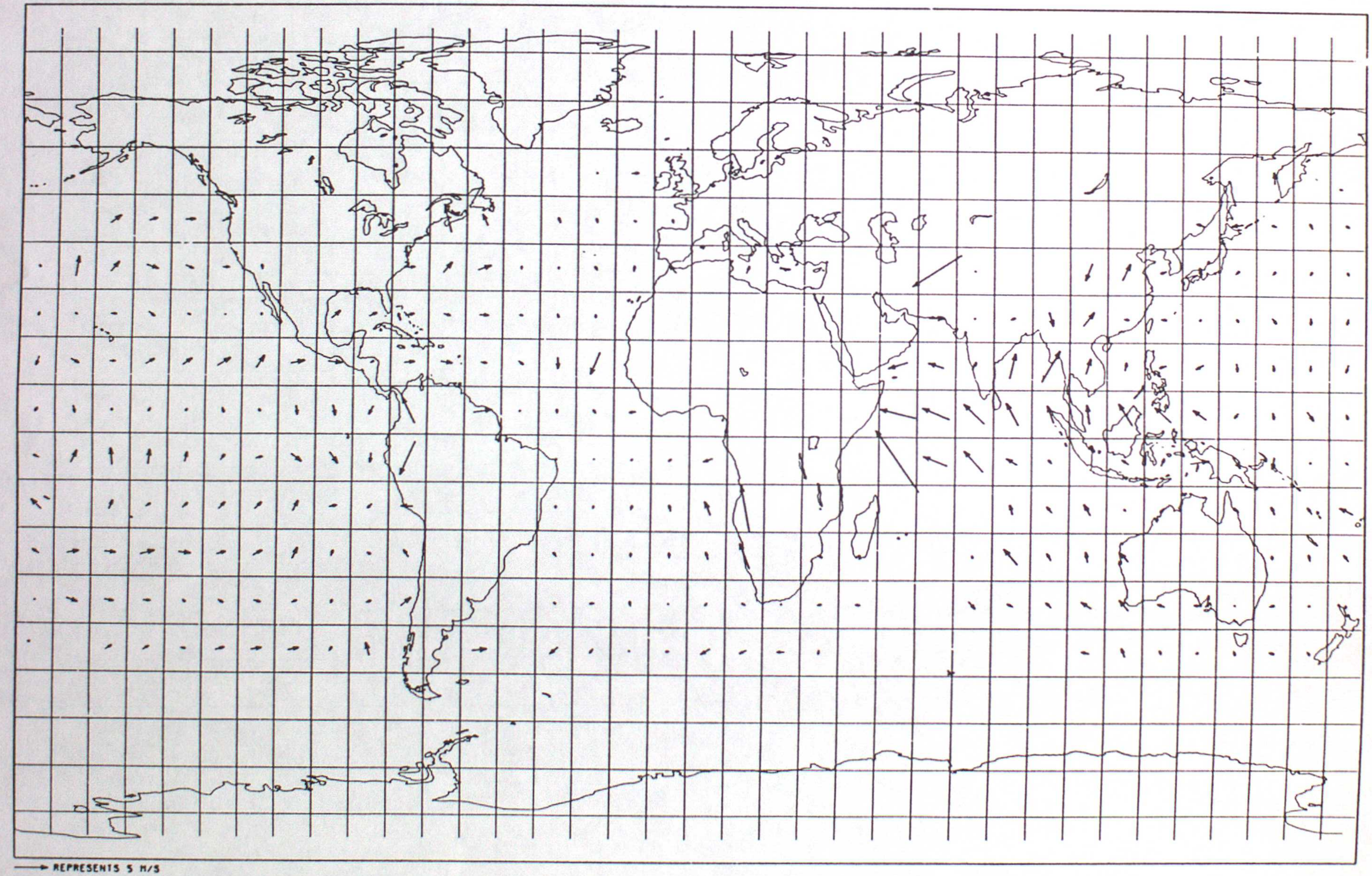
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA

FEBRUARY 1994

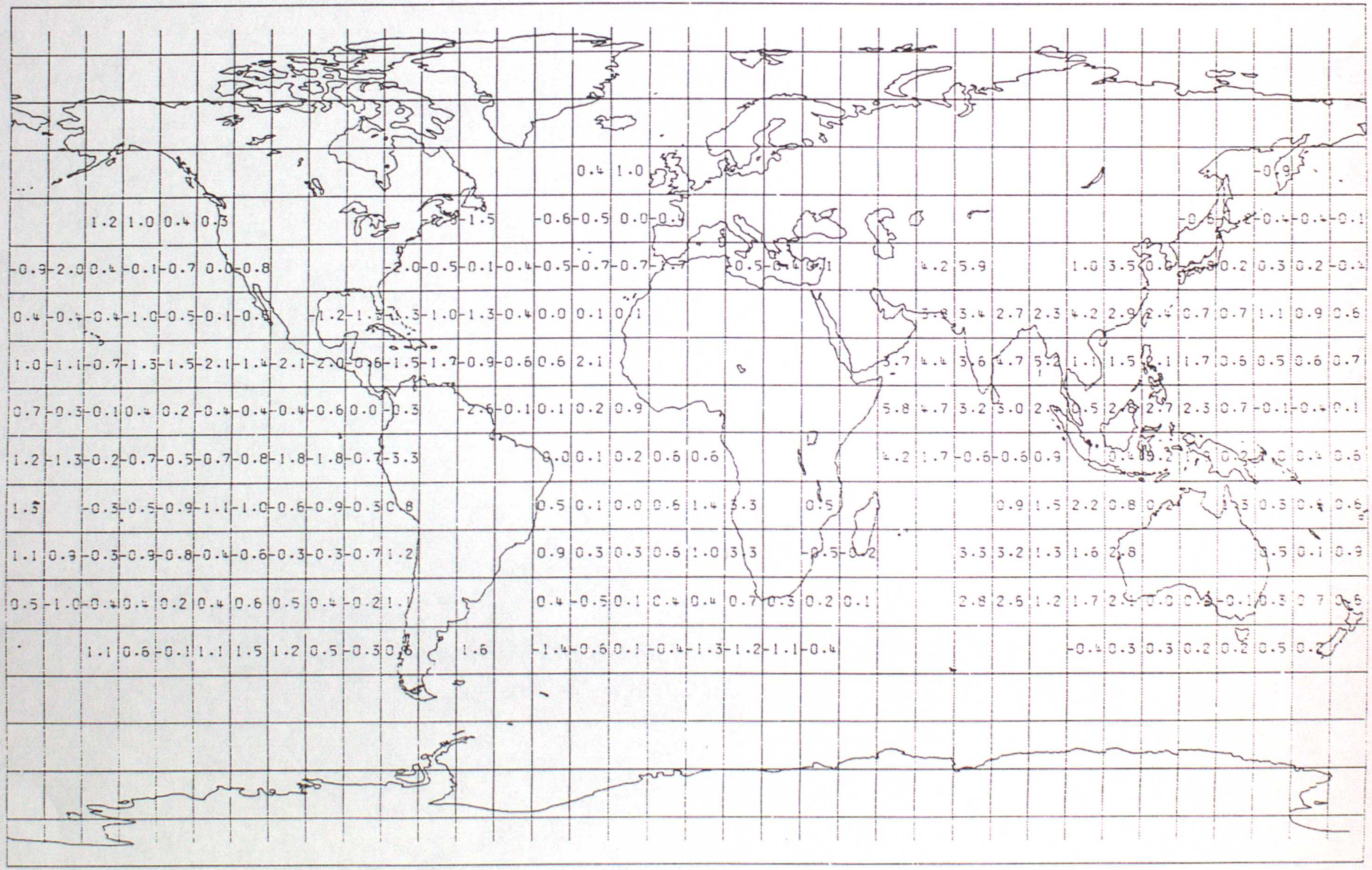
ALL OBSERVATIONS

ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

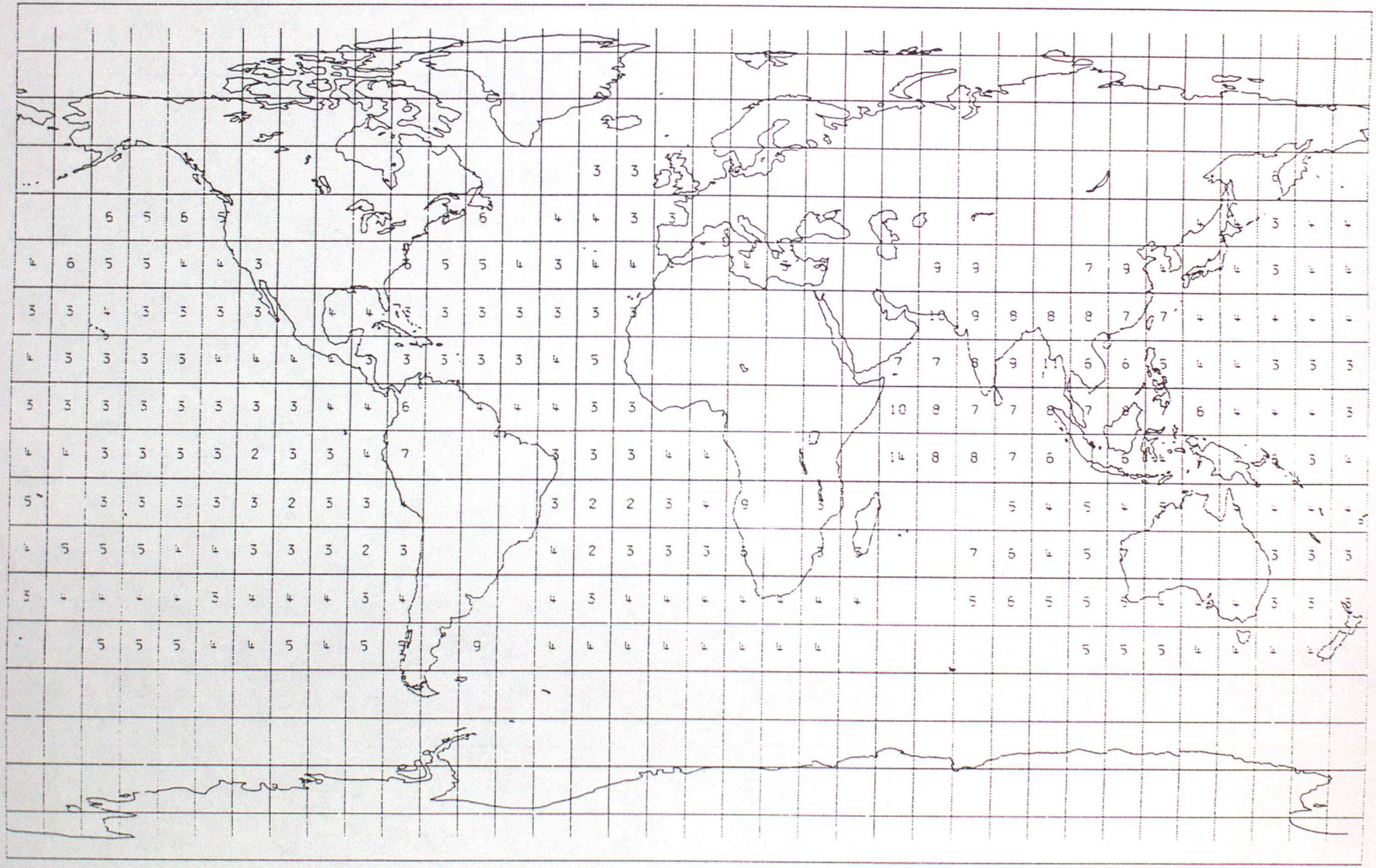
FIGURE 12


REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT


0.4 1.0 -0.9
1.2 1.0 0.4 0.3 -1.5 -0.6 -0.5 0.0 -0.4 -0.6 -0.4 -0.4 -0.1
-0.9 -2.0 0.4 -0.1 -0.7 0.0 -0.8 -2.0 -0.5 -0.1 -0.4 -0.5 -0.7 -0.7 0.5 -0.4 0.1 4.2 5.9 1.0 3.5 0.0 0.2 0.3 0.2 -0.4
0.4 -0.4 -0.4 -1.0 -0.5 -0.1 -0.5 -1.2 -1.0 -1.3 -0.4 0.0 0.1 0.1 3.8 3.4 2.7 2.3 4.2 2.9 2.4 0.7 0.7 1.1 0.9 0.6
1.0 -1.1 -0.7 -1.3 -1.5 -2.1 -1.4 -2.1 -2.0 -0.6 -1.5 -1.7 -0.9 -0.6 0.6 2.1 3.7 4.4 3.6 4.7 5.2 1.1 1.5 2.1 1.7 0.6 0.5 0.6 0.7
0.7 -0.3 -0.1 0.4 0.2 -0.4 -0.4 -0.4 -0.6 0.0 -0.3 -2.6 -0.1 0.1 0.2 0.9 5.8 4.7 3.2 3.0 0.5 2.8 2.7 2.3 0.7 -0.1 -0.4 0.1
1.2 -1.3 -0.2 -0.7 -0.5 -0.7 -0.8 -1.8 -1.8 -0.7 -3.3 0.0 0.1 0.2 0.6 0.6 4.2 1.7 -0.6 -0.6 0.9 0.4 0.2 0.2 0.4 0.6
1.5 -0.3 -0.5 -0.9 -1.1 -1.0 -0.6 -0.9 -0.3 0.8 0.5 0.1 0.0 0.6 1.4 3.3 0.5 0.9 1.5 2.2 0.8 1.3 0.3 0.4 0.6
1.1 0.9 -0.3 -0.9 -0.8 -0.4 -0.6 -0.3 -0.3 -0.7 1.2 0.9 0.3 0.3 0.6 1.0 3.3 -0.5 -0.2 3.3 3.2 1.3 1.6 2.8 0.5 0.1 0.9
0.5 -1.0 -0.4 0.4 0.2 0.4 0.6 0.5 0.4 -0.2 1.1 0.4 -0.5 0.1 0.4 0.4 0.7 0.3 0.2 0.1 2.8 2.6 1.2 1.7 2.4 0.0 0.3 -0.1 0.3 0.7 0.6
1.1 0.6 -0.1 1.1 1.5 1.2 0.5 -0.3 0.6 1.6 -1.4 -0.6 0.1 -0.4 -1.3 -1.2 -1.1 -0.4 -0.4 0.3 0.3 0.2 0.2 0.5 0.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT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6 5 6 5 6 4 4 3 3 4 3 4 4
4 6 5 5 4 4 3 6 5 5 4 3 4 4 4 4 9 9 7 9 4 4 3 4 4
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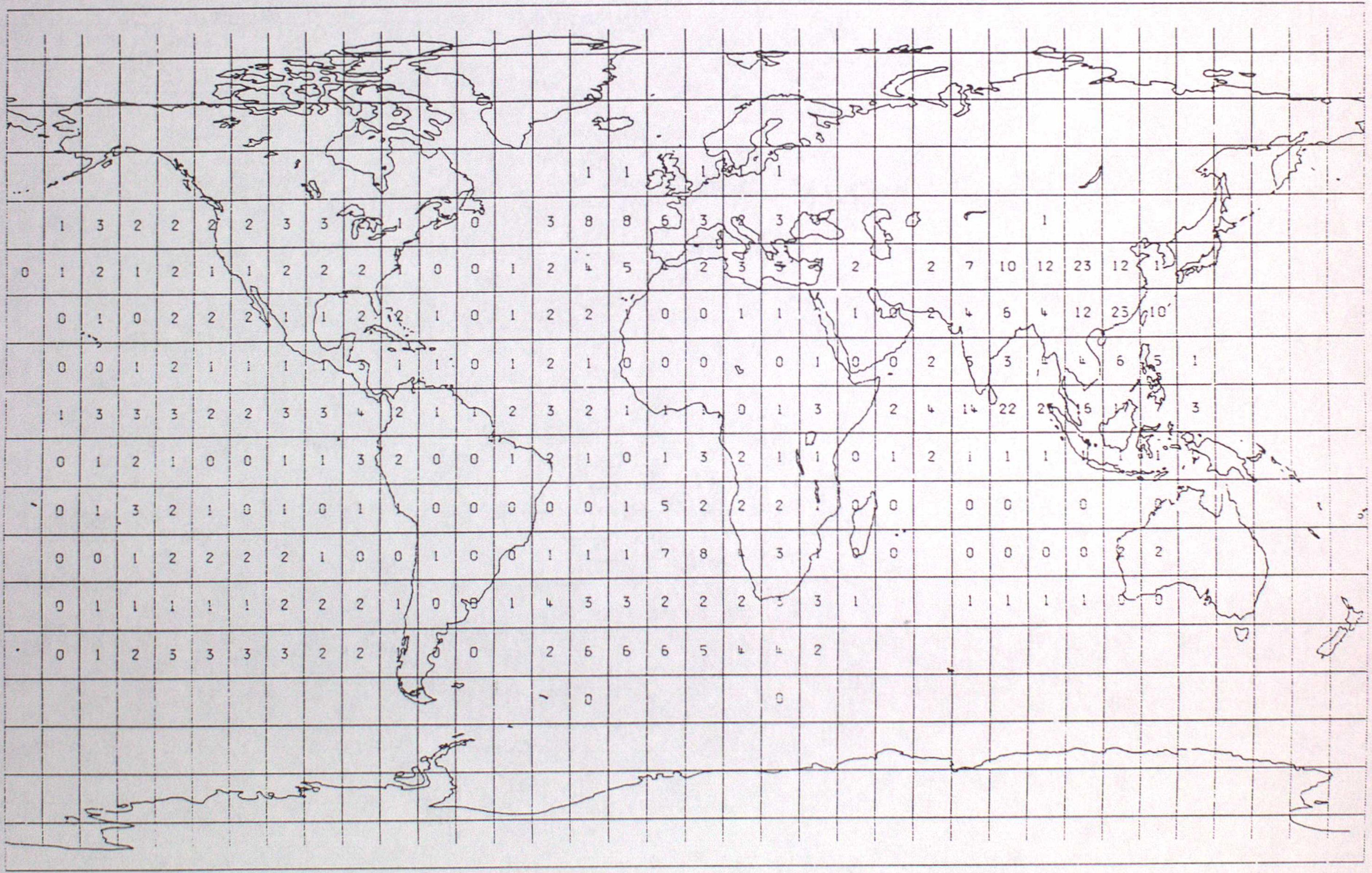
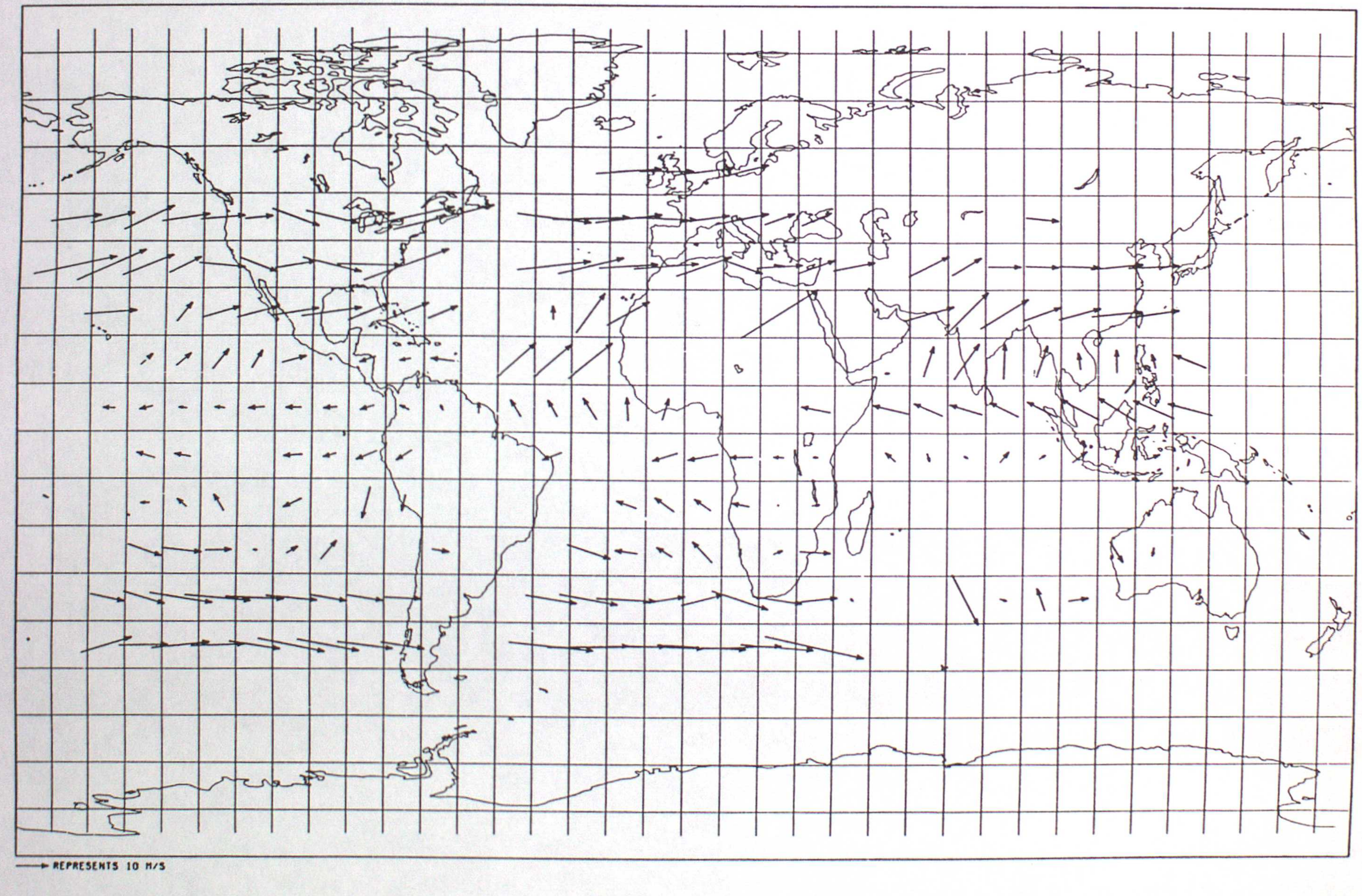
4 3 3 3 3 4 4 4 4 3 3 3 3 3 4 5 7 7 8 9 11 6 6 5 4 4 3 3 3
3 3 3 3 3 3 3 3 4 4 6 4 4 4 3 3 10 9 7 7 8 7 8 7 6 4 4 4 3
4 4 3 3 3 3 2 3 3 4 7 3 3 3 4 4 14 8 8 7 6 5 4 5 3 4
5 3 3 3 3 3 2 3 3 3 2 2 3 4 9 3 5 4 5 4 5 4 4 4
4 5 5 5 4 4 3 3 3 2 3 4 2 3 3 3 5 3 5 7 6 4 5 7 3 3 3
3 4 4 4 4 3 4 4 4 3 4 4 3 4 4 4 4 4 4 4 5 6 5 5 5 4 4 4 3 3 3
5 5 5 4 4 5 4 5 9 4 4 4 4 4 4 4 4 5 5 5 4 4 4 4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
FEBRUARY 1994



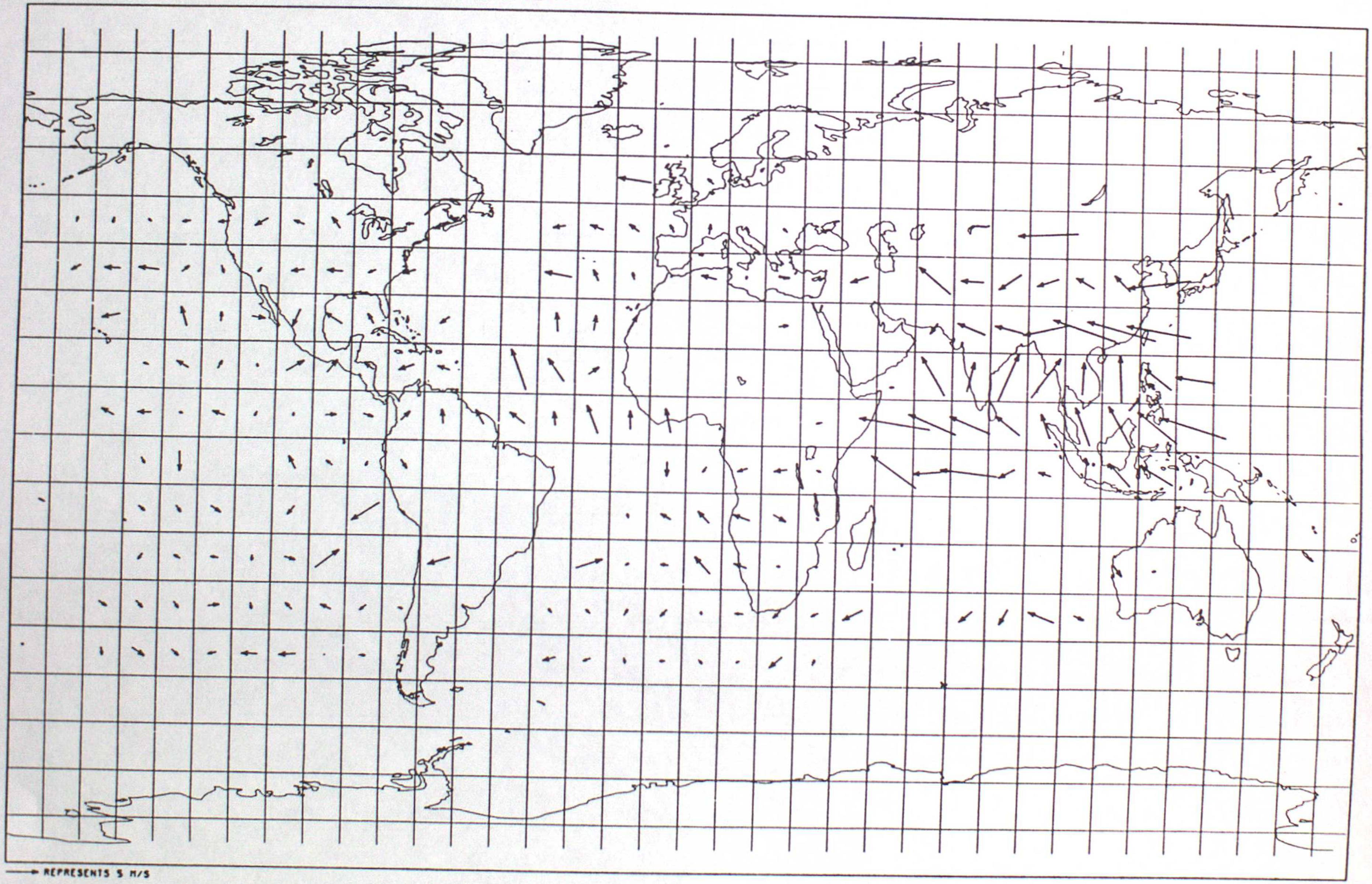
SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
FEBRUARY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

FIGURE 16

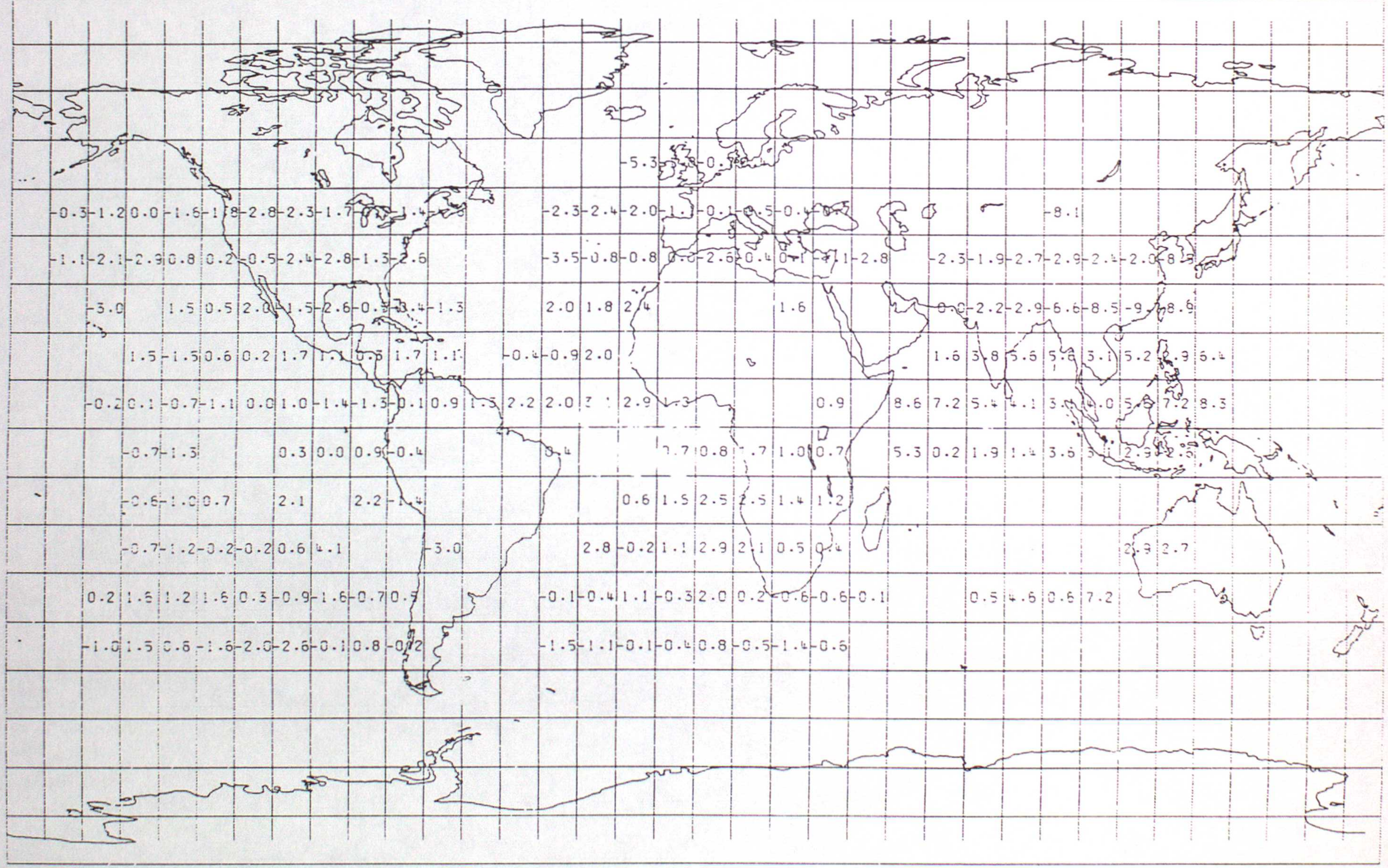

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
FEBRUARY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

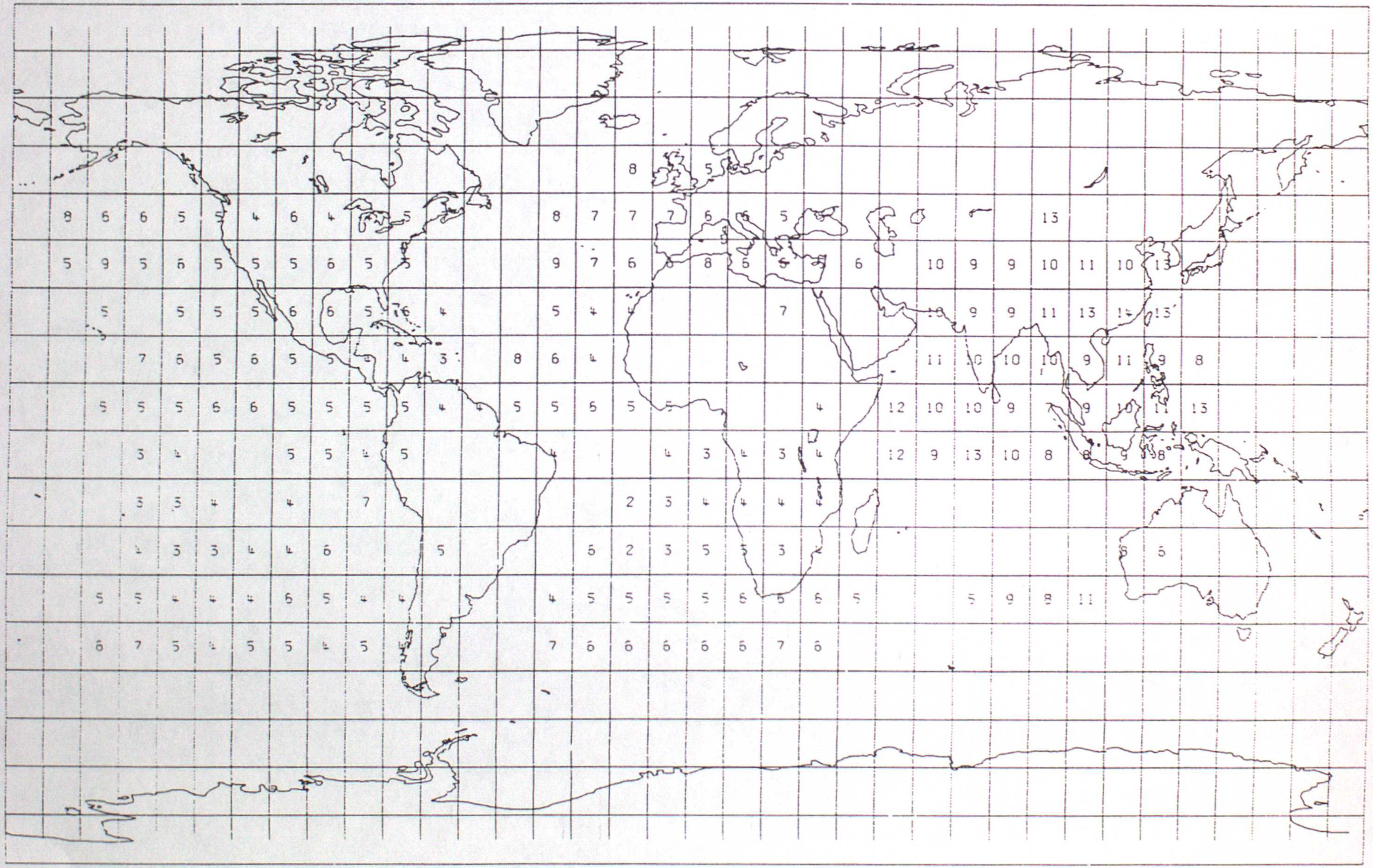
FIGURE 17


REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT


-5.3
-0.3 -1.2 0.0 -1.6 -2.8 -2.3 -1.7 -1.4 -2.3 -2.4 -2.0 -0.1 -0.5 -0.4 -8.1
-1.1 -2.1 -2.9 0.8 0.2 -0.5 -2.4 -2.8 -1.3 -2.6 -3.5 -0.8 -0.8 -2.6 0.4 -2.8 -2.3 -1.9 -2.7 -2.9 -2.4 -2.0
-3.0 1.5 0.5 2.0 -1.5 -2.6 -1.3 2.0 1.8 2.4 1.6 -2.2 -2.9 -6.6 -8.5
1.5 -1.5 0.6 0.2 1.7 1.1 1.7 1.1 -0.4 -0.9 2.0 1.6 3.8 5.6 5.6 3.1 5.2 6.4
-0.2 0.1 -0.7 -1.1 0.0 1.0 -1.4 -1.3 -0.1 0.9 2.2 2.0 2.9 0.9 8.6 7.2 5.4 4.1 4.0 7.2 8.3
-0.7 -1.3 0.3 0.0 0.9 -0.4 0.8 1.0 0.7 5.3 0.2 1.9 1.4 3.6
-0.6 -1.0 0.7 2.1 2.2 0.6 1.5 2.5 1.4 1.2
-0.7 -1.2 -0.2 -0.2 0.6 4.1 -3.0 2.8 -0.2 1.1 2.9 0.5 2.7
0.2 1.6 1.2 1.6 0.3 -0.9 -1.6 -0.7 -0.1 -0.4 1.1 -0.3 2.0 0.2 -0.6 -0.6 -0.1 0.5 4.6 0.6 7.2
-1.0 1.5 0.6 -1.6 -2.0 -2.6 -0.1 0.8 -1.5 -1.1 -0.1 -0.4 0.8 -0.5 -1.4 -0.6

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT


8 5
8 6 6 5 5 4 6 4 5 8 7 7 7 6 6 5 13
5 9 5 6 5 5 5 6 5 9 7 6 8 8 6 6 6 10 9 9 10 11 10 13
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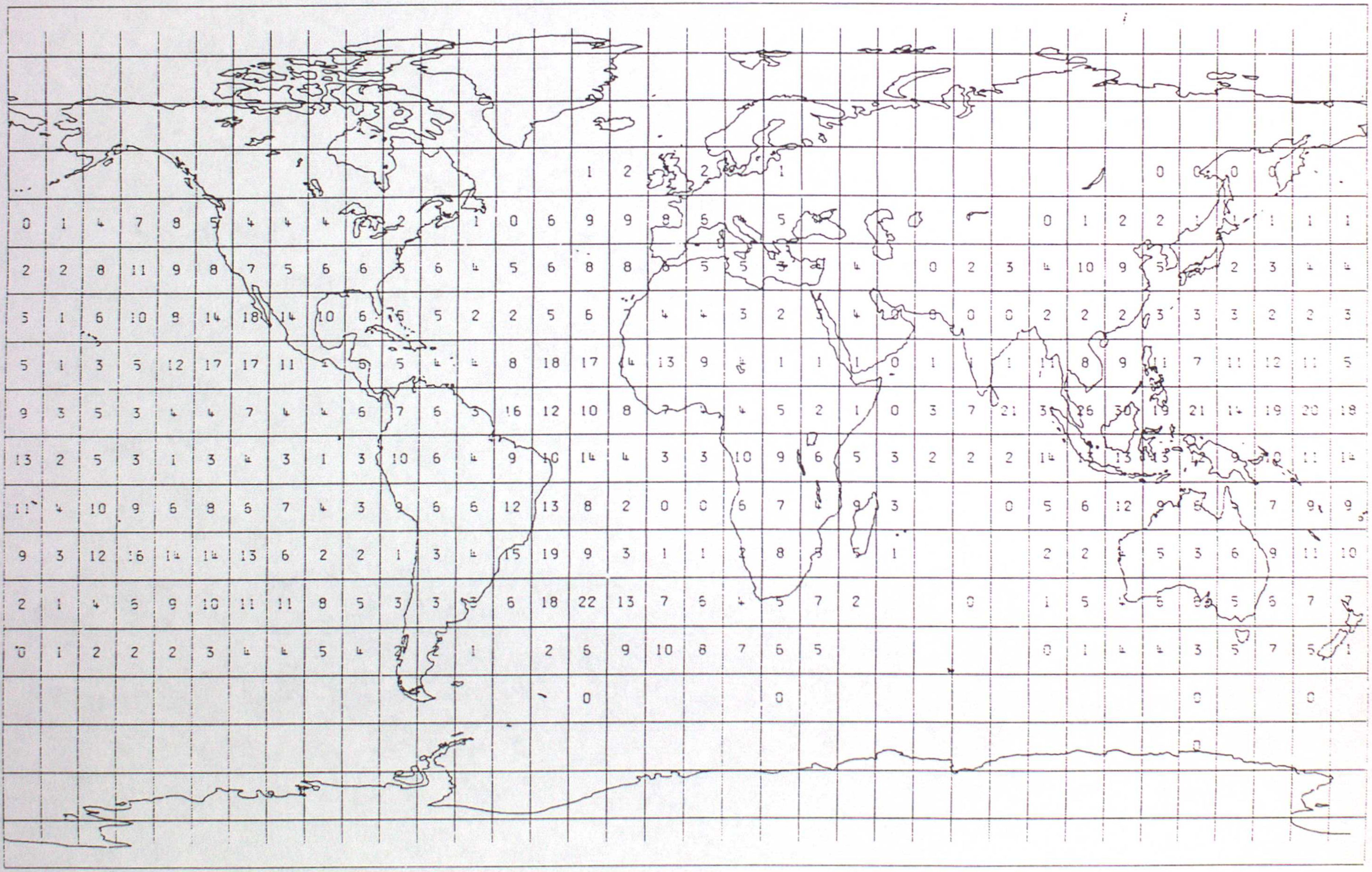
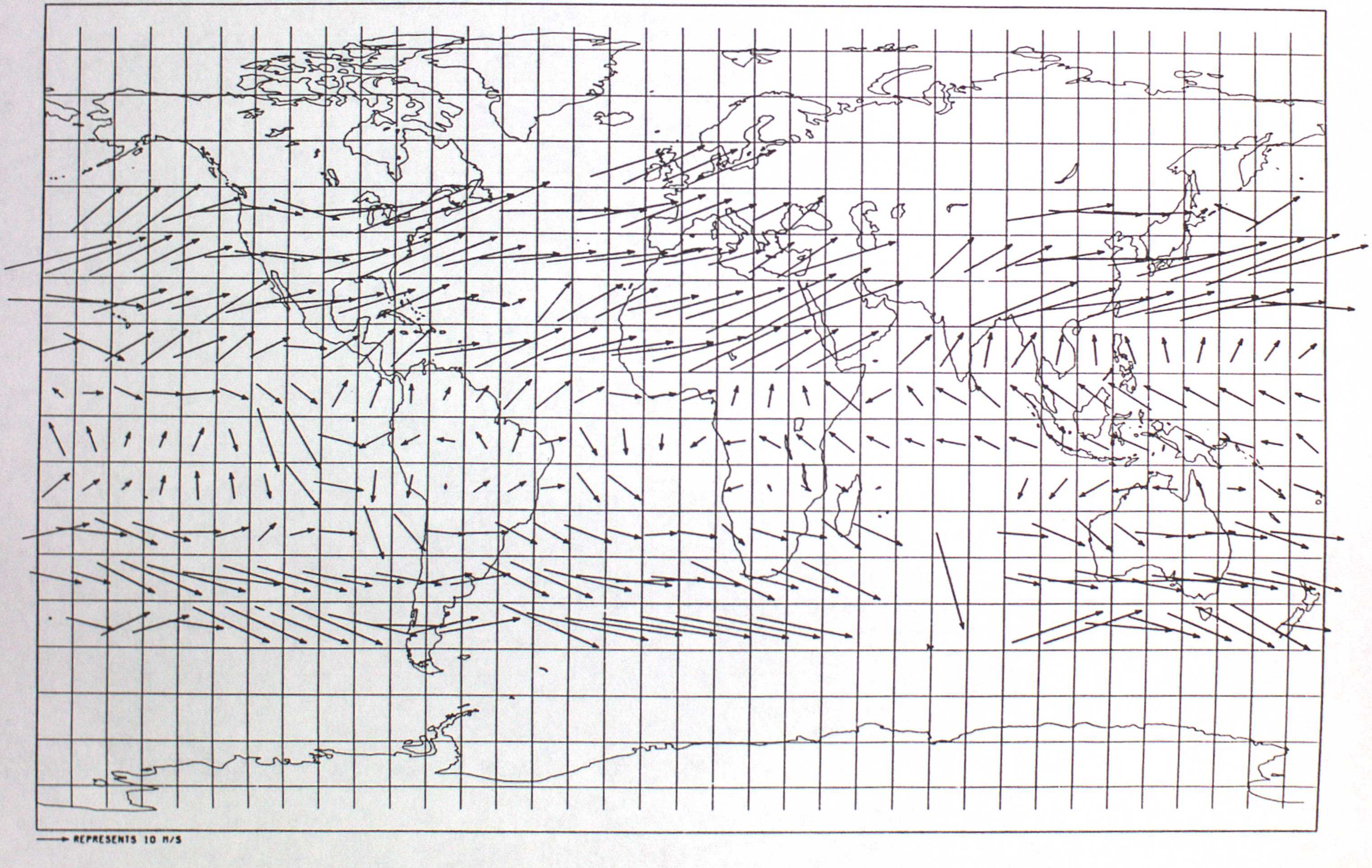
7 6 5 6 5 5 4 4 3 8 6 4 11 10 10 10 9 11 9 8
5 5 5 6 6 5 5 5 5 4 4 5 5 6 5 5 4 12 10 10 9 7 9 10 11 13
3 4 5 5 4 5 4 4 3 4 3 4 12 9 13 10 8 8 9 8
3 3 4 4 7 2 3 4 4 4 4
4 3 3 4 4 6 5 6 2 3 5 5 3 2 6 5
5 5 4 4 4 6 5 4 4 4 5 5 5 5 6 5 6 5 5 9 8 11
6 7 5 4 5 5 4 5 4 7 6 6 6 6 6 7 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
FEBRUARY 1994


1 2 2 1 0 0 0 0
0 1 4 7 8 5 4 4 4 2 1 0 6 9 9 8 5 5 0 1 2 2 1 1 1 1 1
2 2 8 11 9 8 7 5 6 6 5 6 4 5 6 8 8 5 5 5 3 4 0 2 3 4 10 9 5 2 3 4 4
3 1 6 10 8 14 18 14 10 6 6 5 2 2 5 6 4 4 3 2 3 4 0 0 0 0 2 2 2 3 3 3 2 2 3
5 1 3 5 12 17 17 11 1 5 5 4 4 8 18 17 4 13 9 4 1 1 1 0 1 1 1 11 8 9 11 7 11 12 11 5
9 3 5 3 4 4 7 4 4 6 7 6 3 16 12 10 8 7 4 5 2 1 0 3 7 21 3 26 30 19 21 14 19 20 18
13 2 5 3 1 3 4 3 1 3 10 6 4 9 10 14 4 3 3 10 9 6 5 3 2 2 2 14 13 13 13 12 9 10 11 14
11 4 10 9 6 8 6 7 4 3 9 6 6 12 13 8 2 0 0 6 7 4 9 3 0 5 6 12 9 8 4 7 9 9
9 3 12 16 14 14 13 6 2 2 1 3 4 15 19 9 3 1 1 2 8 3 5 1 2 2 4 5 3 6 9 11 10
2 1 4 6 9 10 11 11 8 5 3 3 3 6 18 22 13 7 6 4 5 7 2 0 1 5 4 5 5 5 6 7 7
0 1 2 2 2 3 4 4 5 4 2 2 1 2 6 9 10 8 7 6 5 0 1 4 4 3 5 7 5 1
0 0 0 0
0

SATOB VECTOR MEAN WINDS BETWEEN 101-400 HPA
FEBRUARY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

FIGURE 21


→ REPRESENTS 10 M/S

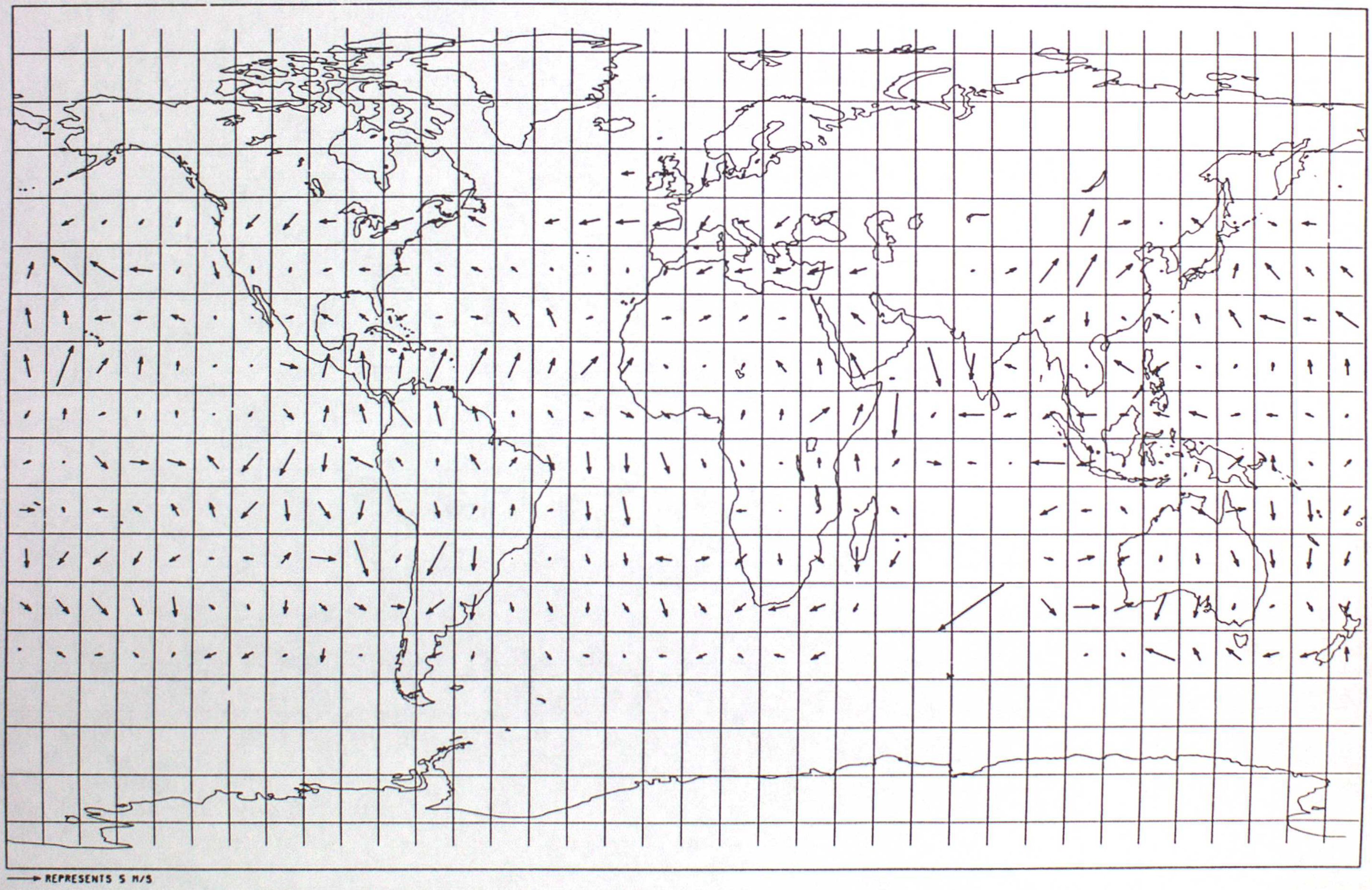
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FEBRUARY 1994

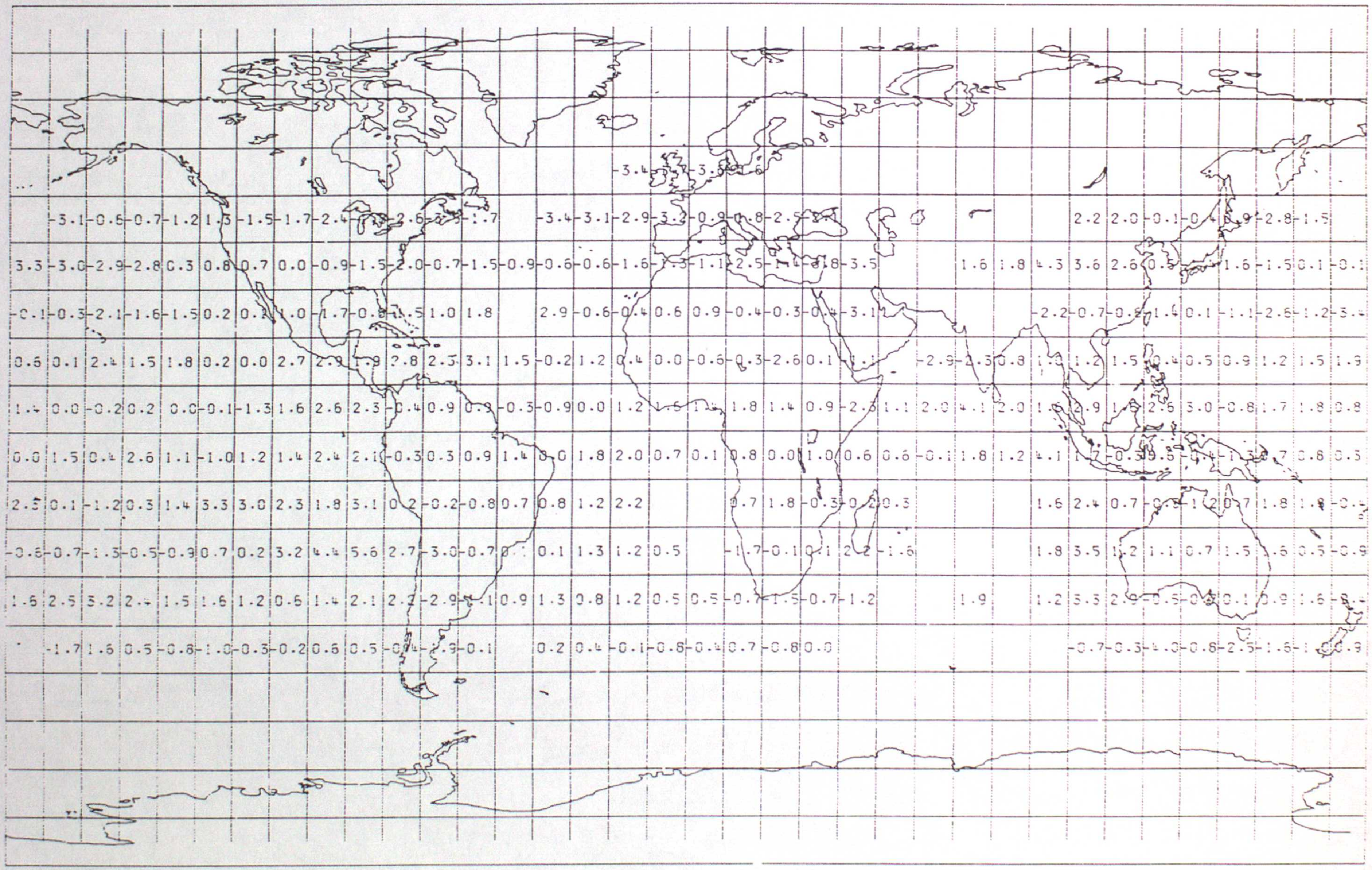
ALL OBSERVATIONS

ARROWS PLOTTED WHERE > 10 OBS ARE PRESENT

FIGURE 22

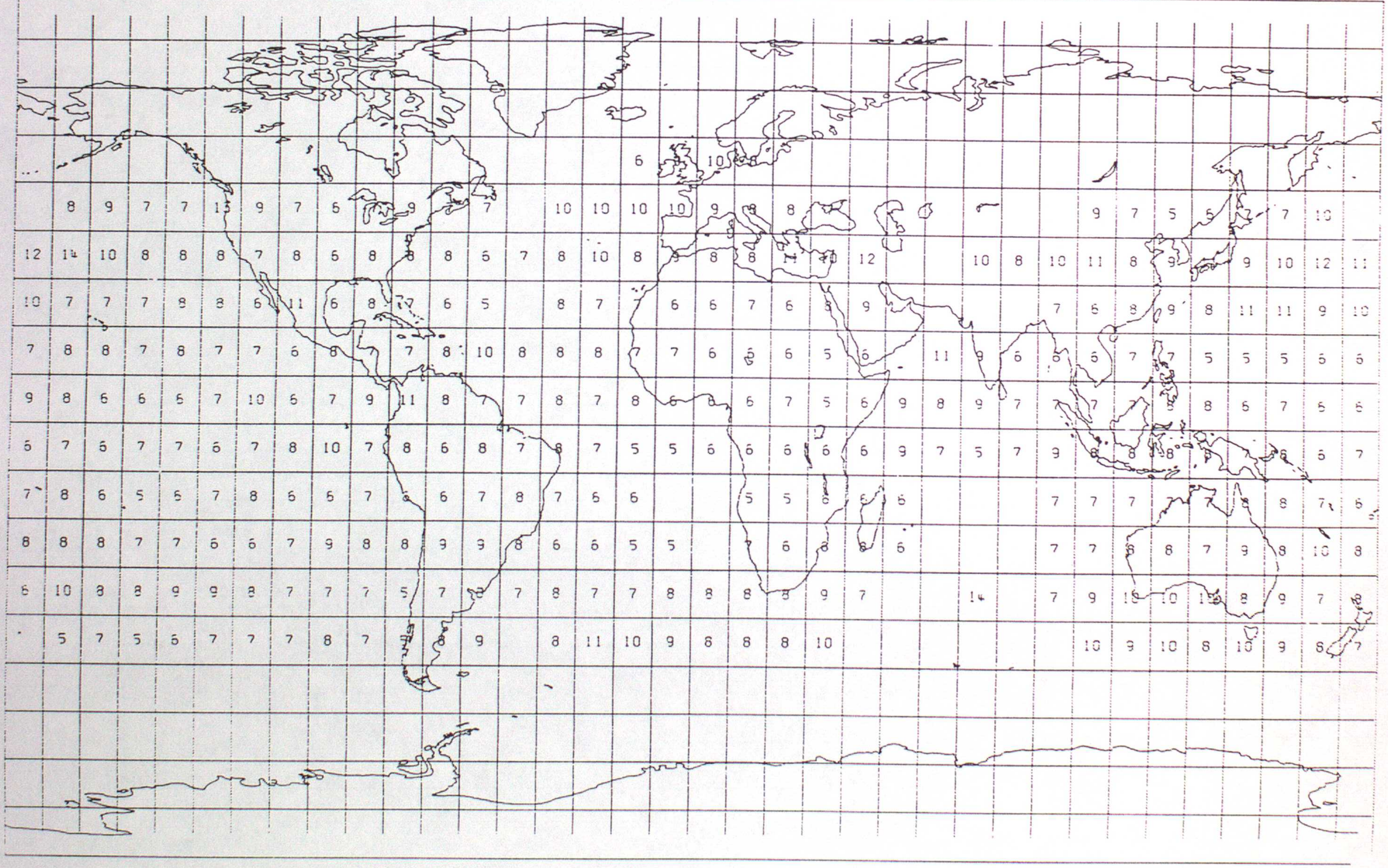

REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT



-3.4 -3.6
-3.1 -0.6 -0.7 -1.2 1.3 -1.5 -1.7 -2.4 -2.6 -1.7 -3.4 -3.1 -2.9 -3.2 -0.9 -0.8 -2.5 2.2 2.0 -0.1 -0.4 -2.8 -1.5
3.3 -3.0 -2.9 -2.8 0.3 0.8 0.7 0.0 -0.9 -1.5 -2.0 -0.7 -1.5 -0.9 -0.6 -0.6 -1.6 -1.3 -1.1 2.5 -3.5 1.6 1.8 4.3 3.6 2.6 -1.6 -1.5 0.1 -0.1
-0.1 -0.3 -2.1 -1.6 -1.5 0.2 0.2 1.0 -1.7 -0.8 1.5 1.0 1.8 2.9 -0.6 -0.4 0.6 0.9 -0.4 -0.3 -0.4 -3.1 -2.2 -0.7 -0.8 1.4 0.1 -1.1 -2.6 -1.2 -3.4
0.6 0.1 2.4 1.5 1.8 0.2 0.0 2.7 2.9 1.9 2.8 2.3 3.1 1.5 -0.2 1.2 0.4 0.0 -0.6 -0.3 -2.6 0.1 -2.9 -2.3 0.8 1.2 1.5 0.4 0.5 0.9 1.2 1.5 1.9
1.4 0.0 -0.2 0.2 0.0 -0.1 -1.3 1.6 2.6 2.3 -0.4 0.9 -0.3 -0.9 0.0 1.2 1.8 1.4 0.9 -2.3 1.1 2.0 4.1 2.0 2.9 2.6 3.0 -0.8 1.7 1.8 0.8
0.0 1.5 0.4 2.6 1.1 -1.0 1.2 1.4 2.4 2.1 -0.3 0.3 0.9 1.4 1.8 2.0 0.7 0.1 0.8 0.0 1.0 0.6 0.6 -0.1 1.8 1.2 4.1 -0.3 0.7 0.8 0.5
2.5 0.1 -1.2 0.3 1.4 3.3 3.0 2.3 1.8 3.1 0.2 -0.2 -0.8 0.7 0.8 1.2 2.2 0.7 1.8 -0.3 0.2 0.3 1.6 2.4 0.7 1.2 0.7 1.8 1.8
-0.6 -0.7 -1.5 -0.5 -0.9 0.7 0.2 3.2 4.4 5.6 2.7 -3.0 -0.7 0.1 1.3 1.2 0.5 -1.7 -0.1 0.1 2.2 -1.6 1.8 3.5 1.2 1.1 0.7 1.5 0.5 -0.9
1.6 2.5 3.2 2.4 1.5 1.6 1.2 0.6 1.4 2.1 2.2 -2.9 1.0 0.9 1.3 0.8 1.2 0.5 0.5 -0.7 -1.5 -0.7 -1.2 1.9 1.2 3.3 2.9 -0.5 0.1 0.9 1.6
-1.7 1.6 0.5 -0.8 -1.0 -0.3 -0.2 0.6 0.5 -2.9 -0.1 0.2 0.4 -0.1 -0.8 -0.4 0.7 -0.8 0.0 -0.7 -0.3 -4.0 -0.8 -2.5 -1.6 0.9

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
FEBRUARY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE 10 OBS ARE PRESENT


6 10
8 9 7 7 13 9 7 6 9 7 10 10 10 10 9 8 8 9 7 5 5 7 10
12 14 10 8 8 8 7 8 6 8 8 8 6 7 8 10 8 9 8 8 14 10 12 10 8 10 11 8 9 9 10 12 11
10 7 7 7 8 8 6 11 6 8 7 6 5 8 7 7 6 6 7 6 9 9 7 6 8 9 8 11 11 9 10
7 8 8 7 8 7 7 6 8 7 7 8 10 8 8 8 7 7 6 5 6 5 6 11 9 6 6 5 7 7 5 5 5 6 6
9 8 6 6 6 7 10 6 7 9 11 8 7 7 8 7 8 6 6 6 7 5 6 9 8 9 7 7 7 8 6 7 6 6
6 7 6 7 7 6 7 8 10 7 8 6 8 7 8 7 5 5 6 6 6 6 6 9 7 5 7 9 8 8 8 7 6 6 7
7 8 6 5 6 7 8 6 6 7 6 6 7 8 7 6 6 5 5 6 6 6 7 7 7 7 7 8 8 7 6
8 8 8 7 7 6 6 7 9 8 8 9 9 8 6 6 5 5 7 6 8 8 6 7 7 8 8 7 9 8 10 8
6 10 8 8 9 9 8 7 7 7 5 7 8 7 8 7 7 8 8 8 8 9 7 14 7 9 10 10 10 8 9 7 8
5 7 5 6 7 7 7 8 7 8 8 9 8 11 10 9 8 8 8 10 10 9 10 8 10 9 8 7

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-11, NOAA-12 500 km.

Standard of comparison :Background field from Bracknell global model.

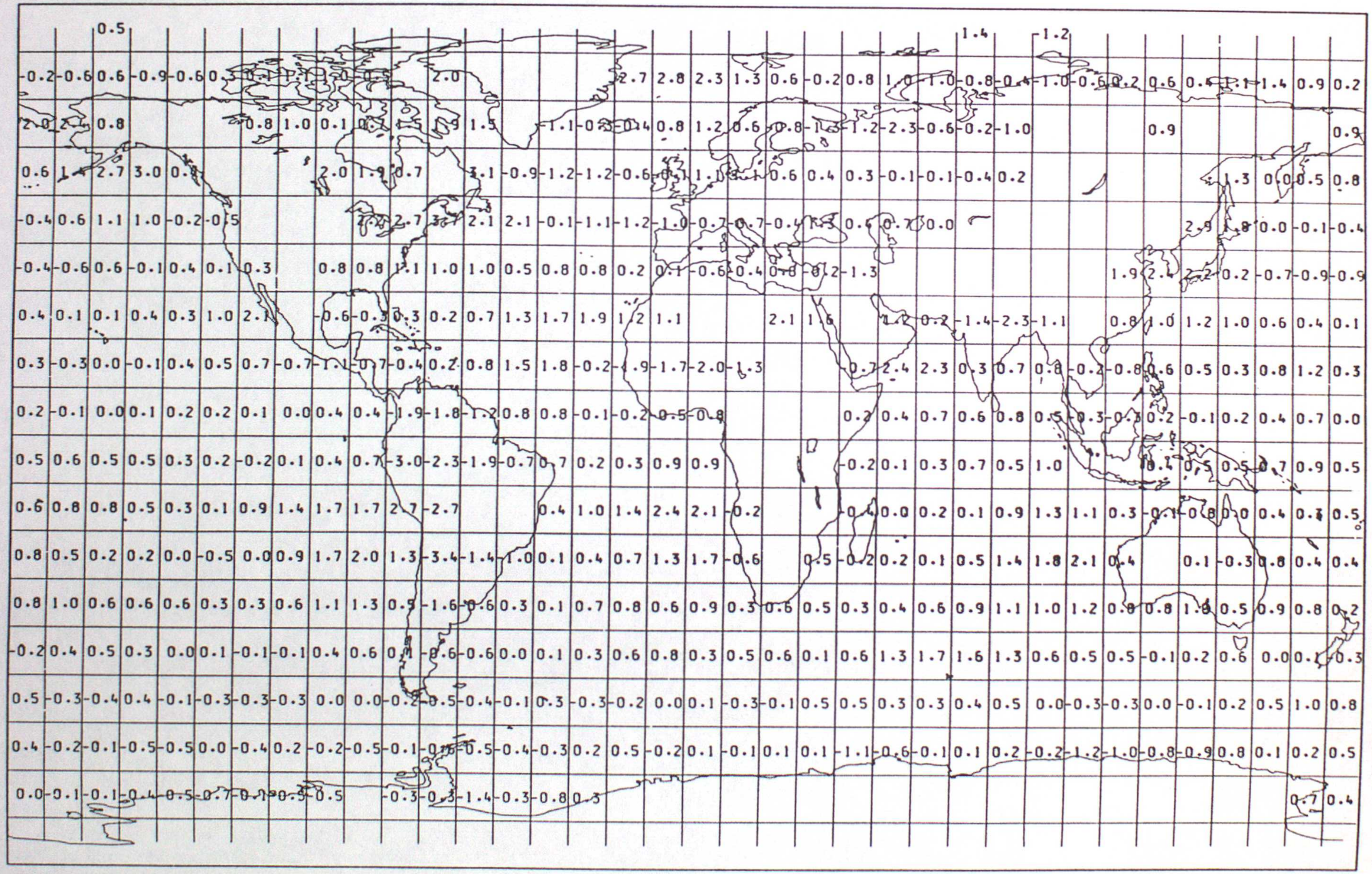
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

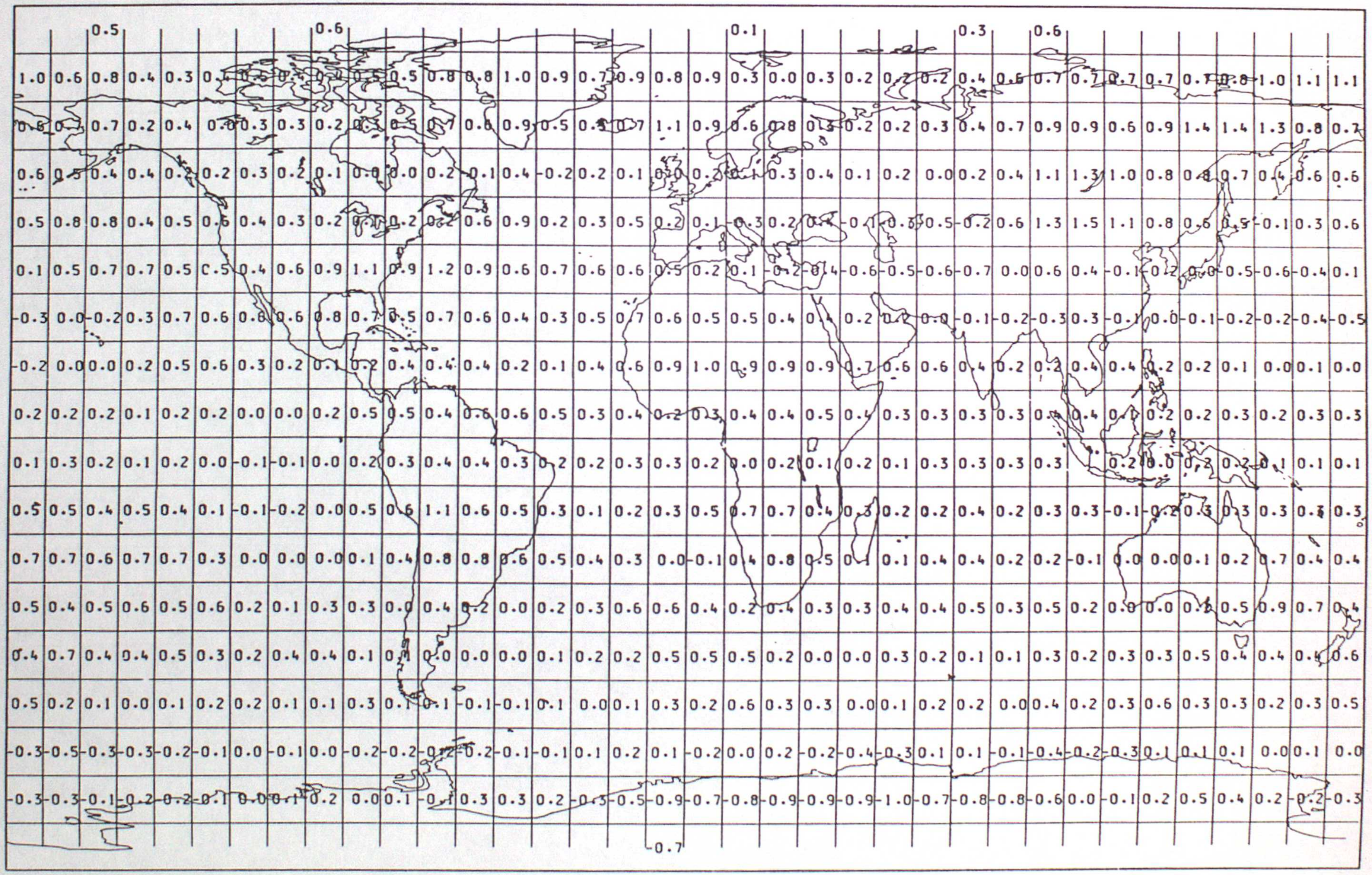
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 25


0.5 1.4 -1.2
-0.2 -0.6 0.6 -0.9 -0.6 0.3 0.1 1.1 1.0 0.5 2.0 2.7 2.8 2.3 1.3 0.6 -0.2 0.8 1.0 -1.0 -0.8 -0.4 -1.0 -0.6 0.2 0.6 0.4 -1.1 -1.4 0.9 0.2
2.0 2.4 0.8 0.8 1.0 0.1 0.7 1.5 1.9 1.5 -1.1 -0.3 -0.4 0.8 1.2 0.6 -0.8 -1.3 -1.2 -2.3 -0.6 -0.2 -1.0 0.9 0.9
0.6 1.4 2.7 3.0 0.8 2.0 1.9 0.7 3.1 -0.9 -1.2 -1.2 -0.6 -0.1 1.1 3.1 0.6 0.4 0.3 -0.1 -0.1 -0.4 0.2 1.3 0.0 0.5 0.8
-0.4 0.6 1.1 1.0 -0.2 -0.5 2.2 2.7 3.7 2.1 2.1 -0.1 -1.1 -1.2 -1.0 -0.7 -0.7 -0.4 1.3 0.6 0.7 0.0 2.9 1.8 0.0 -0.1 -0.4
-0.4 -0.6 0.6 -0.1 0.4 0.1 0.3 0.8 0.8 1.1 1.0 1.0 0.5 0.8 0.8 0.2 0.1 -0.6 0.4 0.8 -0.2 -1.3 1.9 2.4 2.2 0.2 -0.7 -0.9 -0.9
0.4 0.1 0.1 0.4 0.3 1.0 2.1 -0.6 -0.3 0.3 0.2 0.7 1.3 1.7 1.9 1.2 1.1 2.1 1.6 1.2 0.2 -1.4 -2.3 -1.1 0.8 1.0 1.2 1.0 0.6 0.4 0.1
0.3 -0.3 0.0 -0.1 0.4 0.5 0.7 -0.7 -1.1 -0.7 -0.4 0.2 0.8 1.5 1.8 -0.2 -1.9 -1.7 -2.0 -1.3 0.7 2.4 2.3 0.3 0.7 0.8 -0.2 -0.8 0.6 0.5 0.3 0.8 1.2 0.3
0.2 -0.1 0.0 0.1 0.2 0.2 0.1 0.0 0.4 0.4 -1.9 -1.8 -1.2 0.8 0.8 -0.1 -0.2 -0.5 -0.8 0.2 0.4 0.7 0.6 0.8 0.5 -0.3 -0.3 0.2 -0.1 0.2 0.4 0.7 0.0
0.5 0.6 0.5 0.5 0.3 0.2 -0.2 0.1 0.4 0.7 -3.0 -2.3 -1.9 -0.7 0.7 0.2 0.3 0.9 0.9 -0.2 0.1 0.3 0.7 0.5 1.0 0.4 0.5 0.5 0.7 0.9 0.5
0.6 0.8 0.8 0.5 0.3 0.1 0.9 1.4 1.7 1.7 2.7 -2.7 0.4 1.0 1.4 2.4 2.1 -0.2 -0.4 0.0 0.2 0.1 0.9 1.3 1.1 0.3 -0.1 -0.8 0.0 0.4 0.7 0.5
0.8 0.5 0.2 0.2 0.0 -0.5 0.0 0.9 1.7 2.0 1.3 -3.4 -1.4 1.0 0.1 0.4 0.7 1.3 1.7 -0.6 0.5 -0.2 0.2 0.1 0.5 1.4 1.8 2.1 0.4 0.1 -0.3 0.8 0.4 0.4
0.8 1.0 0.6 0.6 0.6 0.3 0.3 0.6 1.1 1.3 0.5 -1.6 -0.6 0.3 0.1 0.7 0.8 0.6 0.9 0.3 0.6 0.5 0.3 0.4 0.6 0.9 1.1 1.0 1.2 0.8 0.8 1.8 0.5 0.9 0.8 0.2
-0.2 0.4 0.5 0.3 0.0 0.1 -0.1 -0.1 0.4 0.6 0.1 -0.6 -0.6 0.0 0.1 0.3 0.6 0.8 0.3 0.5 0.6 0.1 0.6 1.3 1.7 1.6 1.3 0.6 0.5 0.5 -0.1 0.2 0.6 0.0 0.1 -0.3
0.5 -0.3 -0.4 0.4 -0.1 -0.3 -0.3 -0.3 0.0 0.0 -0.2 -0.5 -0.4 -0.1 0.3 -0.3 -0.2 0.0 0.1 -0.3 -0.1 0.5 0.5 0.3 0.3 0.4 0.5 0.0 -0.3 -0.3 0.0 -0.1 0.2 0.5 1.0 0.8
0.4 -0.2 -0.1 -0.5 -0.5 0.0 -0.4 0.2 -0.2 -0.5 -0.1 -0.6 -0.5 -0.4 -0.3 0.2 0.5 -0.2 0.1 -0.1 0.1 0.1 -1.1 -0.6 -0.1 0.1 0.2 -0.2 -1.2 -1.0 -0.8 -0.9 0.8 0.1 0.2 0.5
0.0 -0.1 -0.1 -0.4 -0.5 -0.7 -0.1 -0.3 -0.5 -0.3 -0.3 -1.4 -0.3 -0.8 0.3 0.7 0.4

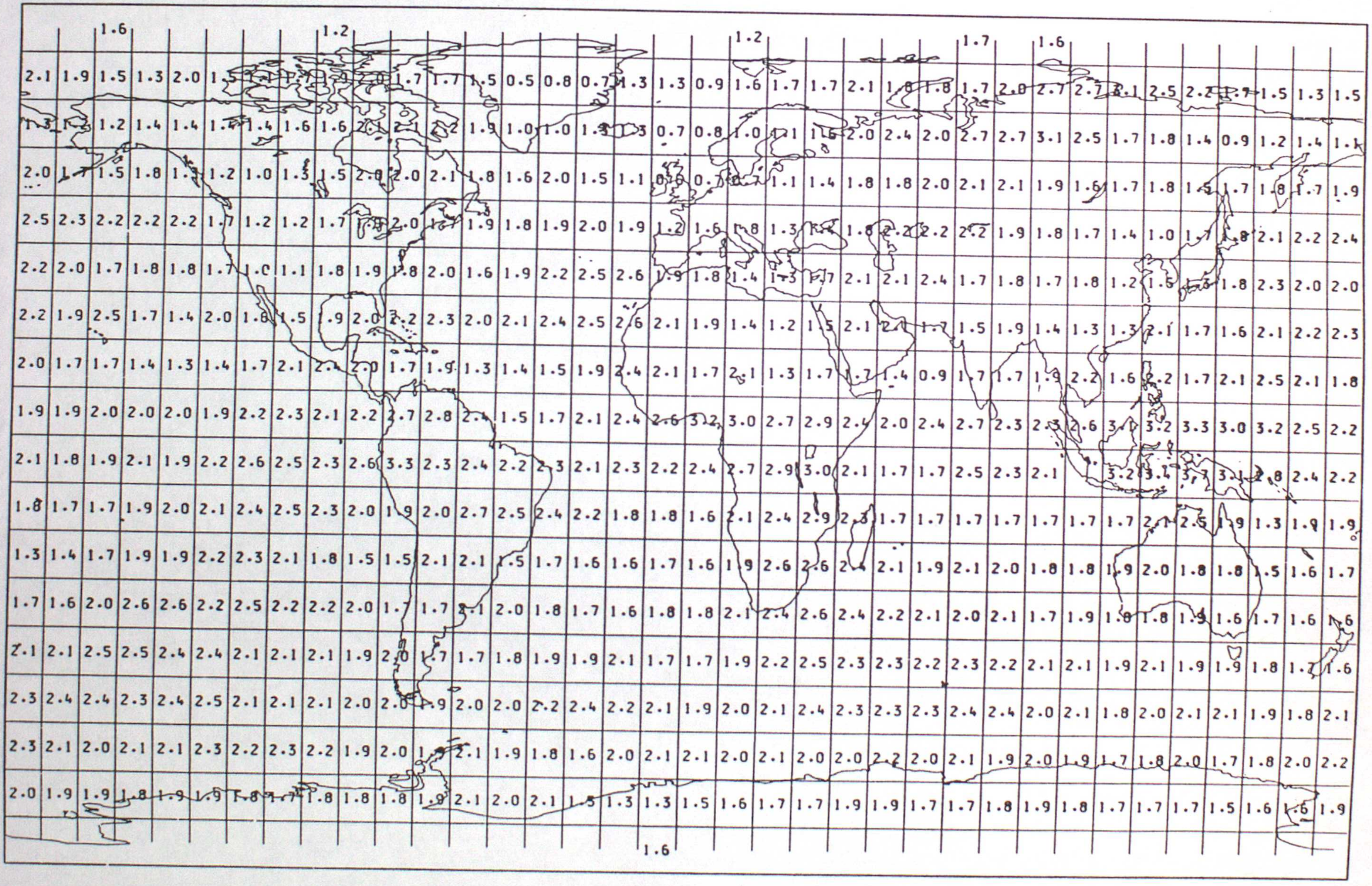
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 26


0.5 0.6 0.1 0.3 0.6
1.0 0.6 0.8 0.4 0.3 0.4 0.5 0.4 0.4 0.5 0.5 0.8 0.8 1.0 0.9 0.7 0.9 0.8 0.9 0.3 0.0 0.3 0.2 0.2 0.2 0.4 0.6 0.7 0.7 0.7 0.7 0.7 0.8 1.0 1.1 1.1
0.6 0.7 0.7 0.2 0.4 0.0 0.3 0.3 0.2 0.3 0.5 0.7 0.8 0.9 0.5 0.5 0.7 1.1 0.9 0.6 0.8 0.3 0.2 0.2 0.3 0.4 0.7 0.9 0.9 0.6 0.9 1.4 1.4 1.3 0.8 0.7
0.6 0.5 0.4 0.4 0.2 0.2 0.3 0.2 0.1 0.0 0.0 0.2 -0.1 0.4 -0.2 0.2 0.1 0.0 0.2 0.1 0.3 0.4 0.1 0.2 0.0 0.2 0.4 1.1 1.3 1.0 0.8 0.8 0.7 0.4 0.6 0.6
0.5 0.8 0.8 0.4 0.5 0.6 0.4 0.3 0.2 0.1 0.2 0.2 0.6 0.9 0.2 0.3 0.5 0.2 0.1 -0.3 0.2 0.4 -0.1 -0.3 -0.5 -0.2 0.6 1.3 1.5 1.1 0.8 0.6 0.5 -0.1 0.3 0.6
0.1 0.5 0.7 0.7 0.5 0.5 0.4 0.6 0.9 1.1 0.9 1.2 0.9 0.6 0.7 0.6 0.6 0.5 0.2 0.1 -0.2 -0.4 -0.6 -0.5 -0.6 -0.7 0.0 0.6 0.4 -0.1 -0.2 0.0 -0.5 -0.6 -0.4 0.1
-0.3 0.0 -0.2 0.3 0.7 0.6 0.8 0.6 0.8 0.7 0.5 0.7 0.6 0.4 0.3 0.5 0.7 0.6 0.5 0.5 0.4 0.4 0.2 0.2 0.0 -0.1 -0.2 -0.3 0.3 -0.1 0.0 -0.1 -0.2 -0.2 -0.4 -0.5
-0.2 0.0 0.0 0.2 0.5 0.6 0.3 0.2 0.1 0.2 0.4 0.4 0.4 0.2 0.1 0.4 0.6 0.9 1.0 0.9 0.9 0.9 0.7 0.6 0.6 0.4 0.2 0.2 0.4 0.4 0.2 0.2 0.1 0.0 0.1 0.0
0.2 0.2 0.2 0.1 0.2 0.2 0.0 0.0 0.2 0.5 0.5 0.4 0.6 0.6 0.5 0.3 0.4 0.2 0.3 0.4 0.4 0.5 0.4 0.3 0.3 0.3 0.3 0.4 0.4 0.4 0.2 0.2 0.3 0.2 0.3 0.3
0.1 0.3 0.2 0.1 0.2 0.0 -0.1 -0.1 0.0 0.2 0.3 0.4 0.4 0.3 0.2 0.2 0.3 0.3 0.2 0.0 0.2 0.1 0.2 0.1 0.3 0.3 0.3 0.3 0.2 0.0 0.2 0.2 0.1 0.1 0.1
0.5 0.5 0.4 0.5 0.4 0.1 -0.1 -0.2 0.0 0.5 0.6 1.1 0.6 0.5 0.3 0.1 0.2 0.3 0.5 0.7 0.7 0.4 0.3 0.2 0.2 0.4 0.2 0.3 0.3 -0.1 -0.2 0.3 0.3 0.3 0.3 0.3
0.7 0.7 0.6 0.7 0.7 0.3 0.0 0.0 0.0 0.1 0.4 0.8 0.8 0.6 0.5 0.4 0.3 0.0 -0.1 0.4 0.8 0.5 0.1 0.1 0.4 0.4 0.2 0.2 -0.1 0.0 0.0 0.1 0.2 0.7 0.4 0.4
0.5 0.4 0.5 0.6 0.5 0.6 0.2 0.1 0.3 0.3 0.0 0.4 0.2 0.0 0.2 0.3 0.6 0.6 0.4 0.2 0.4 0.3 0.3 0.4 0.4 0.5 0.3 0.5 0.2 0.0 0.0 0.2 0.5 0.9 0.7 0.4
0.4 0.7 0.4 0.4 0.5 0.3 0.2 0.4 0.4 0.1 0.1 0.0 0.0 0.0 0.1 0.2 0.2 0.5 0.5 0.5 0.2 0.0 0.0 0.3 0.2 0.1 0.1 0.3 0.2 0.3 0.3 0.5 0.4 0.4 0.4 0.6
0.5 0.2 0.1 0.0 0.1 0.2 0.2 0.1 0.1 0.3 0.1 0.1 -0.1 -0.1 0.1 0.0 0.1 0.3 0.2 0.6 0.3 0.3 0.0 0.1 0.2 0.2 0.0 0.4 0.2 0.3 0.6 0.3 0.3 0.2 0.3 0.5
-0.3 -0.5 -0.3 -0.3 -0.2 -0.1 0.0 -0.1 0.0 -0.2 -0.2 -0.2 -0.2 -0.1 -0.1 0.1 0.2 0.1 -0.2 0.0 0.2 -0.2 -0.4 -0.3 0.1 0.1 -0.1 -0.4 -0.2 -0.3 0.1 0.1 0.1 0.0 0.1 0.0
-0.3 -0.3 -0.1 -0.2 -0.2 -0.1 0.0 0.1 0.2 0.0 0.1 -0.1 0.3 0.3 0.2 -0.3 -0.5 -0.9 -0.7 -0.8 -0.9 -0.9 -0.9 -1.0 -0.7 -0.8 -0.8 -0.6 0.0 -0.1 0.2 0.5 0.4 0.2 -0.2 -0.3
-0.7

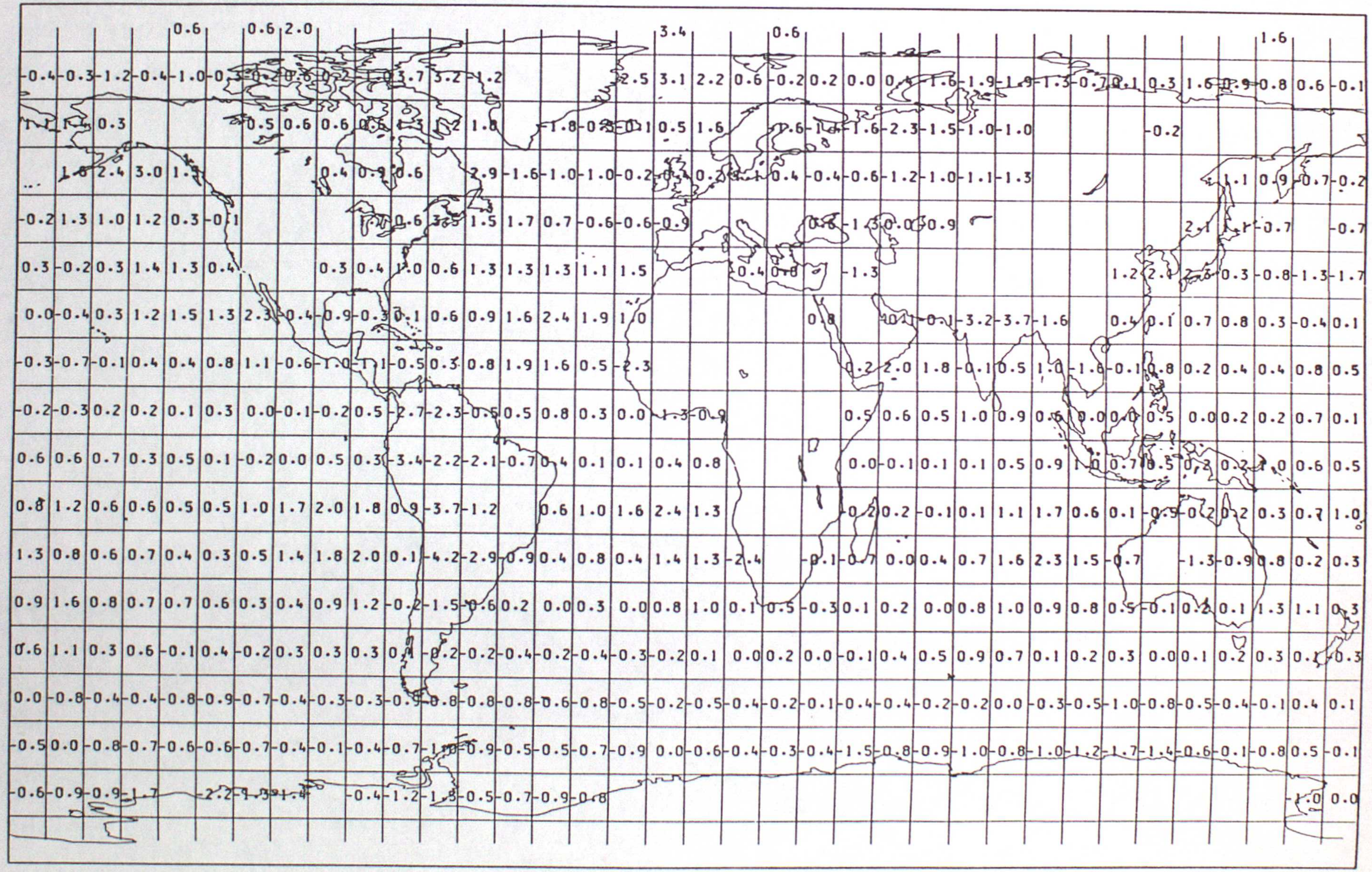
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 27



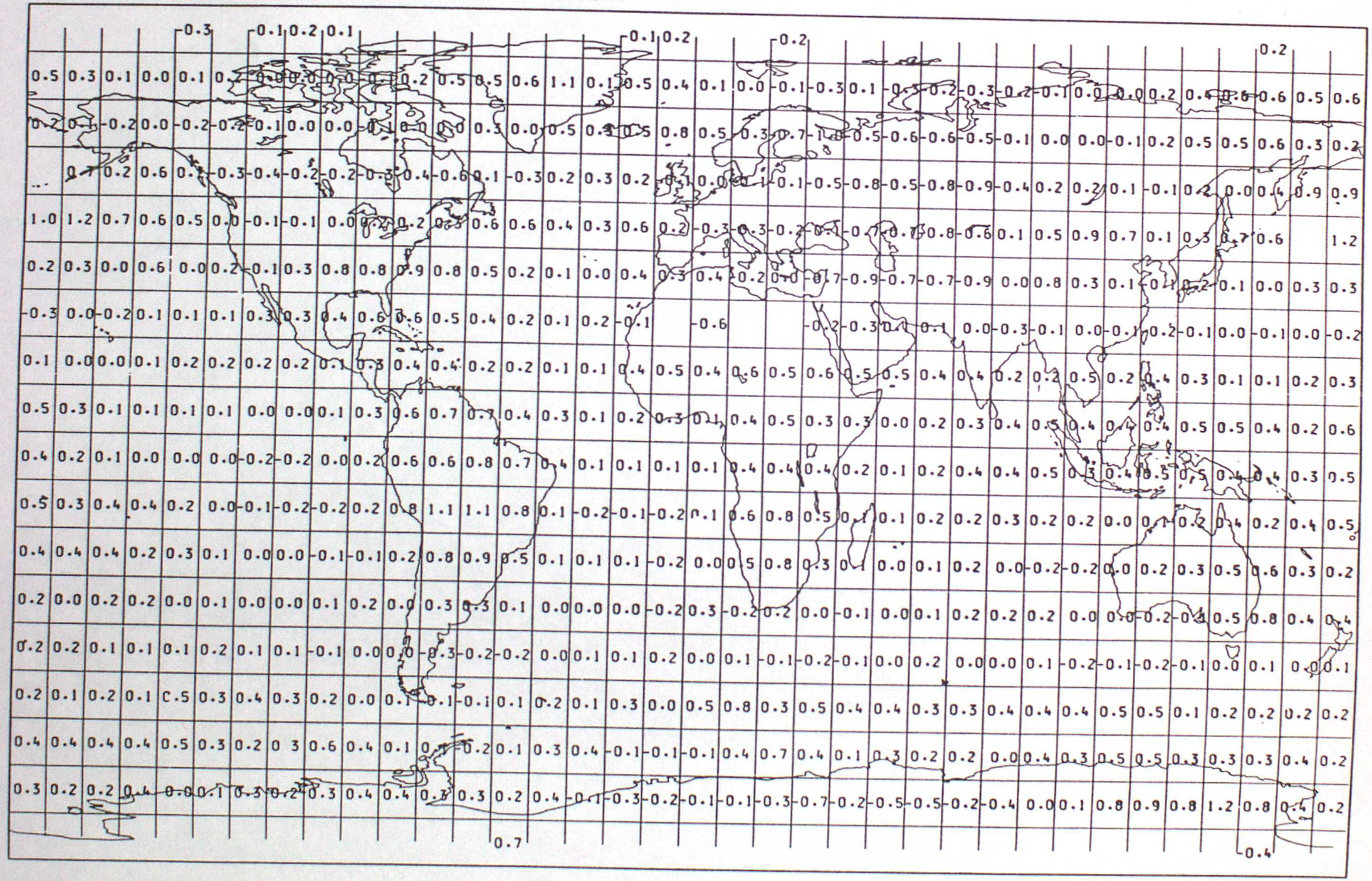
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1994
NOAA-12. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 28


0.6 0.6 2.0 3.4 0.6 1.6
-0.4 -0.3 -1.2 -0.4 -1.0 -0.3 -0.2 0.6 0.2 -1.0 3.7 3.2 -1.2 2.5 3.1 2.2 0.6 -0.2 0.2 0.0 0.4 -1.6 -1.9 -1.9 -1.3 -0.7 0.1 0.3 1.6 0.9 -0.8 0.6 -0.1
1.1 1.4 0.3 0.5 0.6 0.6 0.6 1.3 1.2 1.8 -1.8 -0.5 -0.1 0.5 1.6 1.6 1.4 -1.6 -2.3 -1.5 -1.0 -1.0 -0.2
1.8 2.4 3.0 1.5 0.4 0.9 0.6 2.9 -1.6 -1.0 -1.0 -0.2 -0.4 0.2 -0.1 0.4 -0.4 -0.6 -1.2 -1.0 -1.1 -1.3 1.1 0.9 -0.7 -0.2
-0.2 1.3 1.0 1.2 0.3 -0.1 0.6 3.5 1.5 1.7 0.7 -0.6 -0.6 -0.9 0.6 -1.3 0.0 0.9 2.1 1.1 -0.7 -0.7
0.3 -0.2 0.3 1.4 1.3 0.4 0.3 0.4 1.0 0.6 1.3 1.3 1.3 1.1 1.5 0.4 0.8 -1.3 1.2 2.4 2.6 0.3 -0.8 -1.3 -1.7
0.0 -0.4 0.3 1.2 1.5 1.3 2.3 -0.4 -0.9 -0.3 0.1 0.6 0.9 1.6 2.4 1.9 1.0 0.8 0.1 -0.1 -3.2 -3.7 -1.6 0.4 0.1 0.7 0.8 0.3 -0.4 0.1
-0.3 -0.7 -0.1 0.4 0.4 0.8 1.1 -0.6 -1.0 -1.1 -0.5 0.3 0.8 1.9 1.6 0.5 -2.3 0.2 2.0 1.8 -0.1 0.5 1.0 -1.6 -0.1 0.8 0.2 0.4 0.4 0.8 0.5
-0.2 -0.3 0.2 0.2 0.1 0.3 0.0 -0.1 -0.2 0.5 -2.7 -2.3 -0.5 0.5 0.8 0.3 0.0 -1.3 -0.9 0.5 0.6 0.5 1.0 0.9 0.6 0.0 0.0 0.5 0.0 0.2 0.2 0.7 0.1
0.6 0.6 0.7 0.3 0.5 0.1 -0.2 0.0 0.5 0.3 -3.4 -2.2 -2.1 -0.7 0.4 0.1 0.1 0.4 0.8 0.0 -0.1 0.1 0.1 0.5 0.9 1.0 0.7 0.5 0.2 0.2 1.0 0.6 0.5
0.8 1.2 0.6 0.6 0.5 0.5 1.0 1.7 2.0 1.8 0.9 -3.7 -1.2 0.6 1.0 1.6 2.4 1.3 0.2 0.2 -0.1 0.1 1.1 1.7 0.6 0.1 -0.5 -0.2 0.2 0.3 0.7 1.0
1.3 0.8 0.6 0.7 0.4 0.3 0.5 1.4 1.8 2.0 0.1 -4.2 -2.9 -0.9 0.4 0.8 0.4 1.4 1.3 -2.4 -0.1 -0.7 0.0 0.4 0.7 1.6 2.3 1.5 -0.7 -1.3 -0.9 0.8 0.2 0.3
0.9 1.6 0.8 0.7 0.7 0.6 0.3 0.4 0.9 1.2 -0.2 -1.5 -0.6 0.2 0.0 0.3 0.0 0.8 1.0 0.1 0.5 -0.3 0.1 0.2 0.0 0.8 1.0 0.9 0.8 0.5 -0.1 0.2 0.1 1.3 1.1 0.3
0.6 1.1 0.3 0.6 -0.1 0.4 -0.2 0.3 0.3 0.3 0.4 -0.2 -0.2 -0.4 -0.2 -0.4 -0.3 -0.2 0.1 0.0 0.2 0.0 -0.1 0.4 0.5 0.9 0.7 0.1 0.2 0.3 0.0 0.1 0.2 0.3 0.1 -0.3
0.0 -0.8 -0.4 -0.4 -0.8 -0.9 -0.7 -0.4 -0.3 -0.3 -0.9 -0.8 -0.8 -0.8 -0.6 -0.8 -0.5 -0.2 -0.5 -0.4 -0.2 -0.1 -0.4 -0.4 -0.2 -0.2 0.0 -0.3 -0.5 -1.0 -0.8 -0.5 -0.4 -0.1 0.4 0.1
-0.5 0.0 -0.8 -0.7 -0.6 -0.6 -0.7 -0.4 -0.1 -0.4 -0.7 -1.1 -0.9 -0.5 -0.5 -0.7 -0.9 0.0 -0.6 -0.4 -0.3 -0.4 -1.5 -0.8 -0.9 -1.0 -0.8 -1.0 -1.2 -1.7 -1.4 -0.6 -0.1 -0.8 0.5 -0.1
-0.6 -0.9 -0.9 -1.7 -2.2 -1.3 -1.4 -0.4 -1.2 -1.3 -0.5 -0.7 -0.9 -0.8 -1.0 0.0

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1994
NOAA-12. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 29


-0.3
-0.1 0.2 0.1
-0.1 0.2
-0.2
0.2
0.5 0.3 0.1 0.0 0.1 0.2 0.0 0.0 0.0 -0.1 0.2 0.5 0.5 0.6 1.1 0.1 0.5 0.4 0.1 0.0 -0.1 -0.3 0.1 -0.3 -0.2 -0.3 -0.2 -0.1 0.0 0.0 0.2 0.4 0.6 -0.6 0.5 0.6
0.2 0.1 -0.2 0.0 -0.2 -0.2 -0.1 0.0 0.0 -0.1 0.0 0.0 0.3 0.0 0.5 0.3 0.5 0.8 0.5 -0.3 -0.7 -1.0 -0.5 -0.6 -0.6 -0.5 -0.1 0.0 0.0 -0.1 0.2 0.5 0.5 0.6 0.3 0.2
0.7 0.2 0.6 0.1 -0.3 -0.4 -0.2 -0.2 -0.3 0.4 -0.6 0.1 -0.3 0.2 0.3 0.2 -0.1 0.0 -0.1 -0.1 -0.5 -0.8 -0.5 -0.8 -0.9 -0.4 0.2 0.2 0.1 -0.1 0.2 0.0 0.4 0.9 0.9
1.0 1.2 0.7 0.6 0.5 0.0 -0.1 -0.1 0.0 -0.2 0.2 0.3 0.6 0.6 0.4 0.3 0.6 0.2 -0.3 -0.3 -0.2 -0.1 -0.7 -0.7 -0.8 -0.6 0.1 0.5 0.9 0.7 0.1 0.3 0.7 0.6 1.2
0.2 0.3 0.0 0.6 0.0 0.2 -0.1 0.3 0.8 0.8 0.9 0.8 0.5 0.2 0.1 0.0 0.4 0.3 0.4 -0.2 0.0 -0.7 -0.9 -0.7 -0.7 -0.9 0.0 0.8 0.3 0.1 -0.1 0.2 -0.1 0.0 0.3 0.3
-0.3 0.0 -0.2 0.1 0.1 0.1 0.3 0.3 0.4 0.6 0.6 0.5 0.4 0.2 0.1 0.2 -0.1 -0.6 -0.2 -0.3 0.1 0.1 0.0 -0.3 -0.1 0.0 -0.1 -0.2 -0.1 0.0 -0.1 0.0 -0.2
0.1 0.0 0.0 0.1 0.2 0.2 0.2 0.2 0.1 0.3 0.4 0.4 0.2 0.2 0.1 0.1 0.4 0.5 0.4 0.6 0.5 0.6 0.5 0.5 0.4 0.4 0.2 0.2 0.5 0.2 0.4 0.3 0.1 0.1 0.2 0.3
0.5 0.3 0.1 0.1 0.1 0.1 0.0 0.0 0.1 0.3 0.6 0.7 0.7 0.4 0.3 0.1 0.2 0.3 0.1 0.4 0.5 0.3 0.3 0.0 0.2 0.3 0.4 0.5 0.4 0.4 0.4 0.5 0.5 0.4 0.2 0.6
0.4 0.2 0.1 0.0 0.0 0.0 -0.2 -0.2 0.0 0.2 0.6 0.6 0.8 0.7 0.4 0.1 0.1 0.1 0.1 0.4 0.4 0.4 0.2 0.1 0.2 0.4 0.4 0.5 0.3 0.4 0.5 0.5 0.4 0.4 0.3 0.5
0.5 0.3 0.4 0.4 0.2 0.0 -0.1 -0.2 -0.2 0.2 0.8 1.1 1.1 0.8 0.1 -0.2 -0.1 -0.2 0.1 0.6 0.8 0.5 0.1 0.1 0.2 0.2 0.3 0.2 0.2 0.0 0.1 -0.2 0.4 0.2 0.4 0.5
0.4 0.4 0.4 0.2 0.3 0.1 0.0 0.0 -0.1 -0.1 0.2 0.8 0.9 0.5 0.1 0.1 0.1 -0.2 0.0 0.5 0.8 0.3 0.1 0.0 0.1 0.2 0.0 -0.2 -0.2 0.0 0.2 0.3 0.5 0.6 0.3 0.2
0.2 0.0 0.2 0.2 0.0 0.1 0.0 0.0 0.1 0.2 0.0 0.3 0.3 0.1 0.0 0.0 0.0 -0.2 0.3 -0.2 0.2 0.0 -0.1 0.0 0.1 0.2 0.2 0.2 0.0 0.0 -0.2 -0.1 0.5 0.8 0.4 0.4
0.2 0.2 0.1 0.1 0.1 0.2 0.1 0.1 -0.1 0.0 0.0 -0.3 -0.2 -0.2 0.0 0.1 0.1 0.2 0.0 0.1 -0.1 -0.2 -0.1 0.0 0.2 0.0 0.0 0.1 -0.2 -0.1 -0.2 -0.1 0.0 0.1 0.0 -0.1
0.2 0.1 0.2 0.1 C.5 0.3 0.4 0.3 0.2 0.0 0.1 -0.1 -0.1 0.1 0.2 0.1 0.3 0.0 0.5 0.8 0.3 0.5 0.4 0.4 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.1 0.2 0.2 0.2 0.2
0.4 0.4 0.4 0.4 0.5 0.3 0.2 0 3 0.6 0.4 0.1 0.4 -0.2 0.1 0.3 0.4 -0.1 -0.1 -0.1 0.4 0.7 0.4 0.1 0.3 0.2 0.2 0.0 0.4 0.3 0.5 0.5 0.3 0.3 0.3 0.4 0.2
0.3 0.2 0.2 0.4 0.0 0.1 0.3 -0.2 0.3 0.4 0.4 0.3 0.3 0.2 0.4 -0.1 -0.3 -0.2 -0.1 -0.1 -0.3 -0.7 -0.2 -0.5 -0.5 -0.2 -0.4 0.0 0.1 0.8 0.9 0.8 1.2 0.8 0.4 0.2
0.7
-0.4

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1994
NOAA-12. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 30

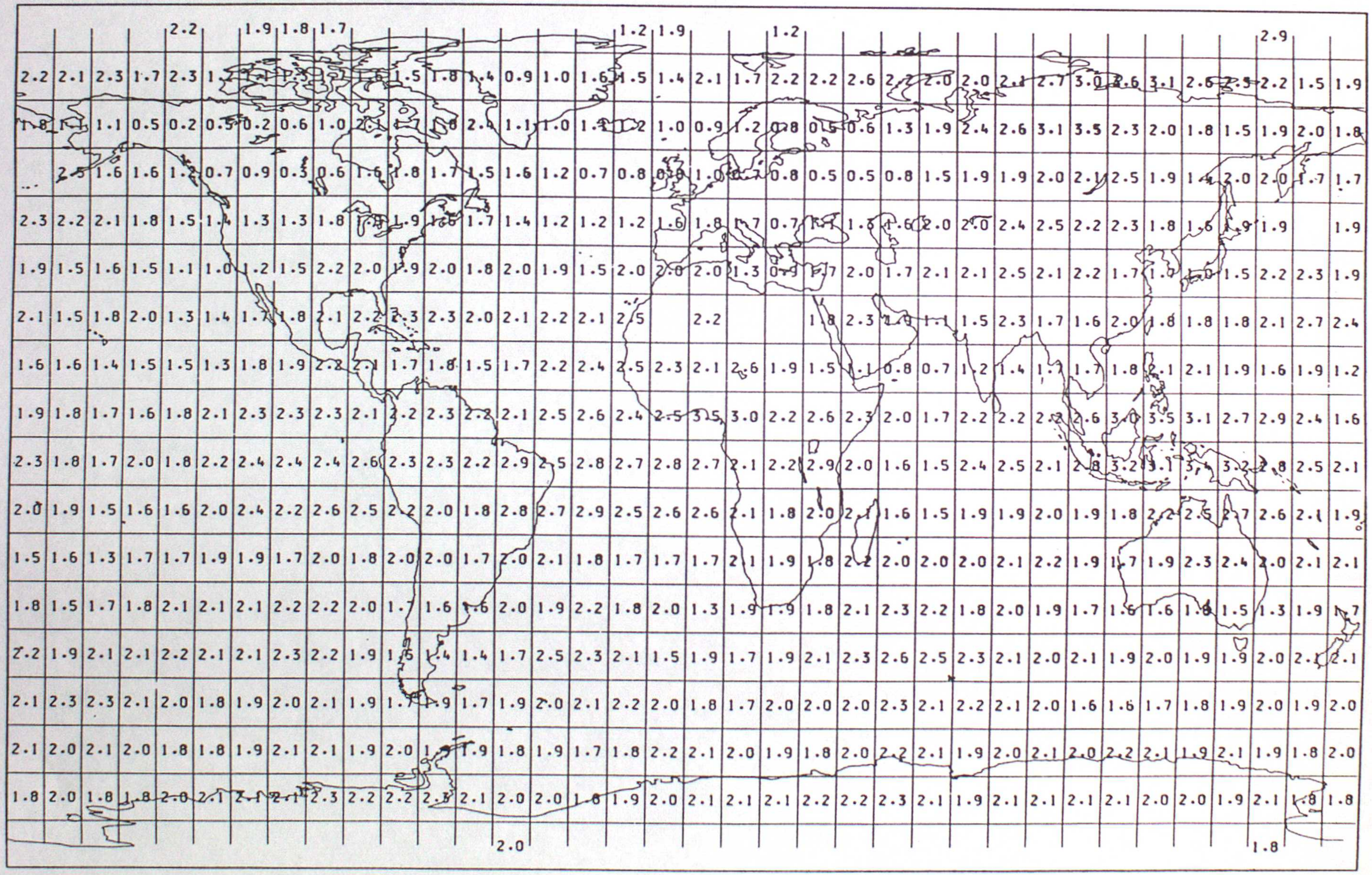

2.2 1.9 1.8 1.7 1.2 1.9 1.2 2.9
2.2 2.1 2.3 1.7 2.3 1.5 1.8 1.4 0.9 1.0 1.6 1.5 1.4 2.1 1.7 2.2 2.2 2.6 2.0 2.0 2.7 3.0 3.1 2.2 1.5 1.9
1.8 1.1 0.5 0.2 0.5 0.2 0.6 1.0 2.4 1.1 1.0 1.0 0.9 1.2 0.5 0.6 1.3 1.9 2.4 2.6 3.1 3.5 2.3 2.0 1.8 1.5 1.9 2.0 1.8
2.5 1.6 1.6 0.7 0.9 0.3 0.6 1.8 1.7 1.5 1.6 1.2 0.7 0.8 1.0 0.8 0.5 0.5 0.8 1.5 1.9 1.9 2.0 2.5 1.9 2.0 2.0 1.7 1.7
2.3 2.2 2.1 1.8 1.5 1.3 1.3 1.8 1.9 1.7 1.4 1.2 1.2 1.2 1.6 1.8 0.7 1.3 2.0 2.0 2.4 2.5 2.2 2.3 1.8 1.6 1.9 1.9
1.9 1.5 1.6 1.5 1.1 1.0 1.2 1.5 2.2 2.0 1.9 2.0 1.8 2.0 1.9 1.5 2.0 2.0 2.0 1.3 1.7 2.0 1.7 2.1 2.1 2.5 2.1 2.2 1.7 1.5 2.2 2.3 1.9
2.1 1.5 1.8 2.0 1.3 1.4 1.7 1.8 2.1 2.2 2.3 2.3 2.0 2.1 2.2 2.1 2.5 2.2 1.8 2.3 1.1 1.5 2.3 1.7 1.6 2.0 1.8 1.8 1.8 2.1 2.7 2.4
1.6 1.6 1.4 1.5 1.5 1.3 1.8 1.9 2.2 2.1 1.7 1.8 1.5 1.7 2.2 2.4 2.5 2.3 2.1 2.6 1.9 1.5 1.1 0.8 0.7 1.2 1.4 1.7 1.7 1.8 2.1 2.1 1.9 1.6 1.9 1.2
1.9 1.8 1.7 1.6 1.8 2.1 2.3 2.3 2.3 2.1 2.2 2.3 2.2 2.1 2.5 2.6 2.4 2.5 3.5 3.0 2.2 2.6 2.3 2.0 1.7 2.2 2.2 2.2 2.6 3.0 3.5 3.1 2.7 2.9 2.4 1.6
2.3 1.8 1.7 2.0 1.8 2.2 2.4 2.4 2.4 2.6 2.3 2.3 2.2 2.9 2.5 2.8 2.7 2.8 2.7 2.1 2.2 2.9 2.0 1.6 1.5 2.4 2.5 2.1 2.8 3.2 3.1 3.1 3.2 2.8 2.5 2.1
2.0 1.9 1.5 1.6 1.6 2.0 2.4 2.2 2.6 2.5 2.2 2.0 1.8 2.8 2.7 2.9 2.5 2.6 2.6 2.1 1.8 2.0 2.1 1.6 1.5 1.9 1.9 2.0 1.9 1.8 2.2 2.5 2.7 2.6 2.1 1.9
1.5 1.6 1.3 1.7 1.7 1.9 1.9 1.7 2.0 1.8 2.0 2.0 1.7 2.0 2.1 1.8 1.7 1.7 1.7 2.1 1.9 1.8 2.2 2.0 2.0 2.0 2.1 2.2 1.9 1.7 1.9 2.3 2.4 2.0 2.1 2.1
1.8 1.5 1.7 1.8 2.1 2.1 2.1 2.2 2.2 2.0 1.7 1.6 1.6 2.0 1.9 2.2 1.8 2.0 1.3 1.9 1.9 1.8 2.1 2.3 2.2 1.8 2.0 1.9 1.7 1.6 1.6 1.8 1.5 1.3 1.9 1.7
2.2 1.9 2.1 2.1 2.2 2.1 2.1 2.3 2.2 1.9 1.5 1.4 1.4 1.7 2.5 2.3 2.1 1.5 1.9 1.7 1.9 2.1 2.3 2.6 2.5 2.3 2.1 2.0 2.1 1.9 2.0 1.9 1.9 2.0 2.1 2.1
2.1 2.3 2.3 2.1 2.0 1.8 1.9 2.0 2.1 1.9 1.7 1.9 1.7 1.9 2.0 2.1 2.2 2.0 1.8 1.7 2.0 2.0 2.0 2.3 2.1 2.2 2.1 2.0 1.6 1.6 1.7 1.8 1.9 2.0 1.9 2.0
2.1 2.0 2.1 2.0 1.8 1.8 1.9 2.1 2.1 1.9 2.0 1.9 1.9 1.8 1.9 1.7 1.8 2.2 2.1 2.0 1.9 1.8 2.0 2.2 2.1 1.9 2.0 2.1 2.0 2.2 2.1 1.9 2.1 1.9 1.8 2.0
1.8 2.0 1.8 1.8 2.0 2.1 2.1 2.1 2.3 2.2 2.2 2.3 2.1 2.0 2.0 1.6 1.9 2.0 2.1 2.1 2.1 2.2 2.2 2.3 2.1 1.9 2.1 2.1 2.1 2.1 2.0 2.0 1.9 2.1 1.8 1.8
2.0 1.8

TABLE 7

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
12509	44.7	-63.6	ALL	MSLP	SUR	18	0	0	1.5	-4.0	4.2
13507	44.7	-63.6	ALL	MSLP	SUR	12	0	0	2.1	-2.8	3.5
13510	44.7	-63.6	ALL	MSLP	SUR	17	0	0	2.6	-3.6	4.5
13556	27.6	-28.8	ALL	MSLP	SUR	145	0	0	1.0	0.2	1.0
13561	32.8	-19.6	ALL	MSLP	SUR	131	0	0	1.1	0.6	1.3
25561	61.4	-40.2	ALL	MSLP	SUR	491	23	5	4.0	3.5	5.3
31504	44.7	-63.6	ALL	MSLP	SUR	33	0	0	2.4	-4.6	5.2
40504	33.3	-40.1	ALL	MSLP	SUR	1	0	0	0.0	0.2	0.2
40604	30.0	-75.2	ALL	MSLP	SUR	6	0	0	0.5	-0.9	1.1
40705	15.0	-48.8	ALL	MSLP	SUR	1	0	0	0.0	-1.1	1.1
40805	31.1	-49.5	ALL	MSLP	SUR	1	0	0	0.0	-0.4	0.4
41522	25.3	-72.6	ALL	MSLP	SUR	246	0	0	0.9	-0.2	0.9
41523	21.6	-76.3	ALL	MSLP	SUR	230	0	0	0.9	-0.4	1.0
43512	44.7	-63.6	ALL	MSLP	SUR	13	0	0	2.4	-3.2	4.0
44613	49.8	-5.7	ALL	MSLP	SUR	514	100	19	2.2	-0.1	2.2
44720	58.0	-15.2	ALL	MSLP	SUR	1	0	0	0.0	6.3	6.3
44728	57.6	-16.1	ALL	MSLP	SUR	700	1	0	2.1	0.4	2.1
44742	53.5	-40.6	ALL	MSLP	SUR	14	3	21	0.7	-1.5	1.7
44743	34.8	-39.6	ALL	MSLP	SUR	251	0	0	1.1	-0.1	1.1
44760	35.2	-40.7	ALL	MSLP	SUR	218	17	8	2.9	0.6	2.9
44761	56.2	-38.7	ALL	MSLP	SUR	260	1	0	1.4	0.7	1.6
44763	54.3	-39.6	ALL	MSLP	SUR	230	1	0	1.7	0.4	1.8
44765	27.2	-51.2	ALL	MSLP	SUR	252	1	0	0.9	-0.5	1.0
44774	40.1	-26.5	ALL	MSLP	SUR	77	0	0	1.5	0.0	1.5
44777	50.0	-4.3	ALL	MSLP	SUR	169	4	2	2.4	-0.2	2.4
44778	60.9	-14.5	ALL	MSLP	SUR	1342	2	0	1.6	0.2	1.6
44779	54.0	-15.9	ALL	MSLP	SUR	44	0	0	2.0	0.7	2.1
50606	35.4	-44.6	ALL	MSLP	SUR	1	0	0	0.0	-1.2	1.2
52538	44.7	-63.6	ALL	MSLP	SUR	35	0	0	2.3	-4.5	5.1
54531	44.7	-63.6	ALL	MSLP	SUR	16	0	0	1.2	-3.9	4.1
54532	44.7	-63.6	ALL	MSLP	SUR	26	0	0	2.5	-3.6	4.4
62501	47.9	-12.6	ALL	MSLP	SUR	467	0	0	2.3	1.5	2.8
62502	46.2	-8.0	ALL	MSLP	SUR	156	0	0	1.7	0.0	1.7
62514	42.3	-16.8	ALL	MSLP	SUR	205	0	0	2.1	0.9	2.3
62524	37.5	-22.7	ALL	MSLP	SUR	874	1	0	1.3	0.2	1.3
62601	19.4	-55.0	ALL	MSLP	SUR	226	0	0	1.0	-0.1	1.0
62606	36.9	-9.1	ALL	MSLP	SUR	149	0	0	1.2	1.0	1.6
62695	40.1	-26.6	ALL	MSLP	SUR	350	0	0	1.4	-0.3	1.4
62711	60.2	-15.4	ALL	MSLP	SUR	1211	4	0	1.6	0.2	1.6
64528	61.1	-36.5	ALL	MSLP	SUR	22	0	0	1.8	1.7	2.4
65581	60.7	-50.1	ALL	MSLP	SUR	1	0	0	0.0	-1.3	1.3
65592	60.2	-29.1	ALL	MSLP	SUR	1199	17	1	2.6	-0.1	2.6
WIND SPEED											
13556	27.6	-28.8	ALL	SPEED	SUR	439	0	0	1.4	-1.4	1.9
13561	32.8	-19.6	ALL	SPEED	SUR	384	0	0	1.5	-1.3	2.0
40504	33.3	-40.1	ALL	SPEED	SUR	1	0	0	0.0	1.7	1.7
40604	30.0	-75.2	ALL	SPEED	SUR	6	0	0	1.2	1.0	1.6
40705	15.0	-48.8	ALL	SPEED	SUR	1	0	0	0.0	2.9	2.9
40805	31.1	-49.5	ALL	SPEED	SUR	1	0	0	0.0	1.9	1.9
44728	57.6	-16.1	ALL	SPEED	SUR	460	0	0	3.6	-4.4	5.6
44742	53.5	-40.6	ALL	SPEED	SUR	45	4	9	4.4	-11.5	12.3
50606	35.4	-44.6	ALL	SPEED	SUR	1	0	0	0.0	-2.7	2.7
62502	46.2	-8.0	ALL	SPEED	SUR	456	0	0	2.4	-0.2	2.5
62695	40.1	-26.6	ALL	SPEED	SUR	299	0	0	2.7	-3.2	4.2
WIND DIRECTION											
13556	27.6	-28.8	ALL	DIRN.	SUR	168	0	0	17.0	2.7	17.2
13561	32.8	-19.6	ALL	DIRN.	SUR	255	0	0	16.9	-13.9	21.9

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
40504	33.3	-40.1	ALL	DIRN.	SUR	1	0	0	0.0	-41.4	41.4
40604	30.0	-75.2	ALL	DIRN.	SUR	4	0	0	36.3	7.8	37.1
40705	15.0	-48.8	ALL	DIRN.	SUR	1	0	0	0.0	3.7	3.7
40805	31.1	-49.5	ALL	DIRN.	SUR	1	0	0	0.0	-33.2	33.2
44728	57.6	-16.1	ALL	DIRN.	SUR	435	0	0	53.6	-3.0	53.7
44742	53.5	-40.6	ALL	DIRN.	SUR	42	4	10	81.9	40.1	91.3
50606	35.4	-44.6	ALL	DIRN.	SUR	1	0	0	0.0	-13.1	13.1
62502	46.2	-8.0	ALL	DIRN.	SUR	427	0	0	22.9	-16.4	28.1
62695	40.1	-26.6	ALL	DIRN.	SUR	261	0	0	24.6	-14.9	28.7

TABLE 8

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	670	1	4	2.1	0.0	682	0	4	0	8.4	0.9
ACA	371	1	4	2.7	-0.6	375	0	3	1	8.7	1.3
AEA	61	0	3	2.7	-0.3	60	3	3	0	10.3	1.4
AEL	202	0	5	2.8	-0.6	208	0	4	0	10.5	1.3
AFL	46	9	100	5.0	2.8	46	0	100	0	15.3	-0.8
AFR	396	0	7	2.4	0.1	408	0	9	0	10.6	1.3
AMX	120	0	0	1.8	0.2	122	0	2	0	10.0	0.0
ANZ	130	1	7	2.2	-0.7	131	0	6	0	8.0	-0.1
AOM	232	1	3	2.5	0.5	237	0	3	0	10.3	1.5
ARP	22	0	0	1.3	-0.3	22	0	5	5	8.2	1.9
AUA	28	0	100	1.8	-0.8	31	0	0	0	5.8	-0.4
AVA	121	1	5	2.4	-0.2	123	0	2	0	10.6	1.4
AVY	25	0	0	1.7	-1.0	26	0	0	0	7.5	1.1
AZA	203	0	4	2.7	0.4	206	0	6	0	12.2	2.0
BAL	29	0	21	2.4	-0.8	31	0	23	0	9.2	2.9
BAW	435	0	7	1.9	0.0	448	0	7	0	8.4	1.1
BWA	124	0	2	2.4	0.9	126	1	4	0	11.6	1.2
CDN	312	0	6	2.3	0.8	314	0	6	2	6.9	0.9
CFG	328	0	3	2.6	-1.4	329	0	2	0	10.7	0.4
CLX	36	0	0	1.7	-0.1	35	0	0	0	7.1	1.7
COA	97	3	4	2.2	1.0	99	0	4	3	8.4	1.5
CRL	55	0	4	2.9	-0.4	56	0	5	0	10.0	1.3
CTM	29	0	28	3.2	-0.5	32	0	28	6	12.2	1.2
CUB	50	0	100	2.1	1.1	52	0	4	0	12.2	2.4
DAL	1156	0	1	2.2	-0.3	1165	0	2	0	9.0	1.3
DHL	135	3	4	3.4	1.2	138	0	4	0	12.4	3.5
DLH	1263	0	8	2.2	-0.2	1272	0	10	2	7.9	1.3
DOA	75	1	19	2.6	0.0	78	1	17	0	8.7	0.6
EIA	148	0	8	2.0	0.0	151	0	10	1	12.5	3.9
ELY	65	0	5	2.2	-0.5	68	0	3	0	7.1	1.4
EWW	22	0	27	4.0	-1.4	22	0	14	0	10.9	3.6
FDX	348	1	7	2.3	0.9	352	0	5	0	8.8	1.3
FIN	283	1	3	1.8	0.3	286	0	3	0	8.4	1.3
GAF	28	4	4	2.3	0.3	28	0	0	0	6.4	1.5
HLF	84	1	8	2.4	-0.8	87	0	5	0	11.5	-0.6
IBE	565	0	16	2.3	0.2	569	0	17	0	10.9	1.1
ICE	317	1	3	1.8	0.1	318	0	4	2	7.8	0.4
JAL	21	0	0	1.6	0.0	21	0	5	0	12.6	2.4
KLM	913	0	1	2.2	0.4	924	0	1	0	8.7	1.8
LDA	144	0	11	2.4	-1.5	146	0	11	0	8.9	0.5
LDI	114	1	3	2.5	-1.4	118	0	2	0	9.1	1.1
LIB	48	0	2	1.9	-0.6	49	0	4	0	9.5	3.0
LOT	229	0	0	1.8	0.1	234	0	2	0	8.3	1.0
LTU	348	1	3	2.3	0.3	347	0	3	0	9.6	1.8
MAH	75	0	1	1.9	-0.6	74	0	1	0	6.8	0.9
MPH	223	0	3	2.1	0.3	227	0	4	0	9.6	1.8
NWA	1684	0	2	2.3	1.0	1718	0	3	1	9.2	1.8
RRR	121	3	26	2.9	-0.2	118	0	22	0	10.5	0.4
SAS	1280	0	1	1.8	-0.2	1276	0	2	1	7.6	0.9
SIA	48	0	4	2.9	-1.6	48	0	6	2	13.6	1.9
SPP	24	0	0	3.2	-0.3	23	0	0	0	8.4	2.1
SVA	60	0	0	2.3	0.2	71	0	3	1	9.7	1.5
SWR	21	0	0	2.1	0.5	21	0	0	0	9.1	0.2
TAP	227	2	5	2.4	-0.7	230	0	6	0	10.9	1.6
TOW	48	4	4	1.8	0.5	56	0	0	0	9.8	2.3
TWA	423	1	3	2.4	0.5	429	0	3	0	8.9	0.8
UAL	886	1	2	2.4	-0.3	903	0	3	1	8.3	0.6
ULE	70	0	0	1.9	-0.1	72	0	1	0	9.7	1.6
UPS	355	0	17	2.0	-0.3	367	0	19	0	10.3	1.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
VIA	53	0	8	2.6	0.3	55	0	7	0	10.1	0.7
WOA	44	2	7	1.8	-0.1	45	0	11	0	10.8	3.7
BA	3014	0	5	2.0	0.1	3012	1	5	0	11.7	3.0
KL	54	0	100	3.1	2.7	54	0	6	0	8.0	2.3
LH	56	4	0	2.4	-1.1	53	0	8	4	12.2	3.7
M	70	4	100	2.5	-0.1	82	0	10	0	13.7	3.7
N	155	3	3	3.0	1.2	160	0	4	1	9.6	0.2

TABLE 9

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored
- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :% REJ :Percentage of observations rejected by quality control at level shown during period.
- :SD :SD of difference of observations from background values at level shown excluding those with gross errors.
- :BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	6	0	22.1	25.7	-13.2
DBBH	12	Z	100	16	0	14.3	17.4	10.0
DBFH	00	Z	100	1	0	0.0	13.0	-13.0
DBRH	00	Z	100	1	0	0.0	16.0	-16.0
DDBH	00	Z	100	1	0	0.0	16.0	-16.0
FNOR	00	Z	100	10	0	13.1	27.6	24.3
FNOR	12	Z	100	11	0	17.7	26.5	19.6
FNOU	00	Z	100	10	0	19.4	34.0	27.9
FNOU	12	Z	100	12	0	18.4	33.5	27.9
FNPH	00	Z	100	11	0	13.3	19.8	-14.6
FNPH	12	Z	100	13	0	19.3	25.4	-16.6
FNRS	00	Z	100	11	0	21.3	21.4	2.5
FNRS	12	Z	100	11	0	23.9	27.1	-12.7
GACA	00	Z	100	23	0	18.2	29.3	23.0
GACA	12	Z	100	23	0	17.8	26.2	19.1
LDWR	00	Z	100	27	0	15.3	15.5	2.2
LDWR	12	Z	100	26	0	20.0	20.5	4.2
OXYL	00	Z	100	11	0	28.4	36.7	23.3
OXYL	12	Z	100	14	0	30.0	43.7	31.9
OZJP	00	Z	100	12	0	49.9	50.0	-3.3
OZJP	12	Z	100	13	0	26.9	35.9	23.8
P3OO4	00	Z	100	14	0	12.8	26.0	22.6
P3OO4	12	Z	100	12	0	18.0	28.6	22.3
SHIP	00	Z	100	3	0	9.0	16.1	13.3
SHIPAA	00	Z	100	3	0	7.4	7.8	2.7
SHIPAA	12	Z	100	5	0	9.8	25.2	23.2
V2LV	00	Z	100	22	0	23.2	26.9	13.5
V2LV	12	Z	100	22	0	17.4	21.3	12.4
V2LX	00	Z	100	19	0	26.8	27.8	7.2
V2LX	12	Z	100	16	0	19.6	22.6	11.3
V8LX	00	Z	100	1	0	0.0	9.0	9.0
ZCAW6	00	Z	100	16	0	10.4	25.9	23.7
ZCAW6	12	Z	100	17	0	15.6	27.6	22.8
ZDLG	00	Z	100	1	0	0.0	15.0	-15.0
03953	00	Z	100	26	0	10.6	21.7	19.0
03953	12	Z	100	25	0	14.4	22.6	17.5
04018	00	Z	100	21	0	18.1	20.9	10.6
04018	12	Z	100	26	0	18.4	23.5	14.6
04220	00	Z	100	26	0	15.5	26.1	21.0
04220	12	Z	100	26	0	14.0	24.3	19.9
04270	00	Z	100	24	0	22.5	33.4	24.7
04270	12	Z	100	25	0	17.6	31.3	25.9
04339	00	Z	100	26	0	19.1	23.6	13.9
04339	12	Z	100	25	0	25.4	28.9	13.8
04360	00	Z	100	25	0	20.9	25.1	14.0
04360	12	Z	100	26	0	24.0	34.9	25.4
08001	00	Z	100	26	0	17.5	26.0	19.2
08001	12	Z	100	21	0	28.1	37.0	24.1
08508	00	Z	100	26	0	25.9	35.0	23.6
08508	12	Z	100	27	0	41.2	46.4	21.4
08594	12	Z	100	21	0	17.7	20.8	10.9
60020	00	Z	100	25	0	21.4	22.4	6.7
60020	12	Z	100	24	0	35.8	37.0	9.2
71600	00	Z	100	26	0	24.8	26.9	10.6
71600	12	Z	100	25	0	21.0	26.6	16.4
72201	00	Z	100	27	0	25.1	36.3	26.3
72201	12	Z	100	26	0	20.6	40.0	34.3
72304	00	Z	100	25	0	36.1	39.9	16.9
72304	12	Z	100	26	0	24.6	34.0	23.5
72402	00	Z	100	19	0	23.8	35.8	26.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	12	Z	100	25	0	27.7	37.0	24.5
72606	00	Z	100	27	0	24.3	25.4	-7.4
72606	12	Z	100	27	0	17.0	17.1	1.2
74494	00	Z	100	23	0	25.8	28.9	-13.0
74494	12	Z	100	22	0	25.9	26.1	-3.4
78016	12	Z	100	9	0	19.1	38.5	33.4

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)

MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	6	0	9.9	10.2	2.5
DBBH	12	Z	500	16	0	14.7	15.0	3.2
DBRH	00	Z	500	1	0	0.0	4.0	-4.0
DDBH	00	Z	500	1	0	0.0	4.0	-4.0
EKOF	00	Z	500	1	0	0.0	24.0	24.0
FNOR	00	Z	500	11	0	13.4	13.7	2.7
FNOR	12	Z	500	11	0	14.9	14.9	-0.2
FNOU	00	Z	500	11	0	9.4	20.3	18.0
FNOU	12	Z	500	12	0	4.0	13.3	12.7
FNPH	00	Z	500	11	0	12.8	12.8	0.3
FNPH	12	Z	500	13	0	9.1	9.5	-2.5
FNRS	00	Z	500	11	0	8.8	11.1	6.8
FNRS	12	Z	500	11	0	17.2	17.3	-1.5
GACA	00	Z	500	23	0	13.5	16.2	8.9
GACA	12	Z	500	23	0	18.6	18.6	0.8
LDWR	00	Z	500	27	0	15.8	17.9	8.5
LDWR	12	Z	500	27	0	14.9	16.0	5.7
OXYL	00	Z	500	12	0	14.6	22.4	17.0
OXYL	12	Z	500	15	0	19.3	22.0	10.7
OZJP	00	Z	500	12	1	17.6	18.6	5.9
OZJP	12	Z	500	14	0	40.6	41.0	5.9
P3004	00	Z	500	15	0	14.5	17.2	9.3
P3004	12	Z	500	13	0	14.9	16.4	6.9
SHIP	00	Z	500	4	0	5.9	6.1	-1.5
SHIP	12	Z	500	4	0	19.2	19.3	-1.5
SHIPA	00	Z	500	2	0	3.5	8.3	-7.5
SHIPAA	00	Z	500	7	0	19.1	19.5	-4.1
SHIPAA	12	Z	500	8	0	9.2	9.4	1.8
V2LV	00	Z	500	24	0	18.4	20.5	9.1
V2LV	12	Z	500	22	0	14.8	14.9	1.1
V2LX	00	Z	500	20	0	14.3	14.3	0.4
V2LX	12	Z	500	17	0	16.2	16.3	-1.5
V8LX	00	Z	500	1	0	0.0	0.0	0.0
ZCAW6	00	Z	500	16	0	16.5	16.5	-0.3
ZCAW6	12	Z	500	17	0	15.8	16.6	-5.1
ZDLG	00	Z	500	1	0	0.0	15.0	15.0
03953	00	Z	500	26	0	13.8	16.1	8.4
03953	12	Z	500	25	0	14.1	14.8	4.7
04018	00	Z	500	27	0	14.1	20.7	15.1
04018	12	Z	500	27	0	19.2	22.2	11.1
04220	00	Z	500	26	0	16.5	23.3	16.4
04220	12	Z	500	26	0	12.2	15.5	9.6
04270	00	Z	500	25	0	19.2	19.9	5.0
04270	12	Z	500	25	0	19.4	20.2	5.5
04339	00	Z	500	26	0	14.6	19.6	13.1
04339	12	Z	500	26	0	19.4	21.2	8.6
04360	00	Z	500	25	0	15.9	18.5	9.3
04360	12	Z	500	26	0	18.7	18.9	2.9
08001	00	Z	500	26	0	26.7	28.8	10.8
08001	12	Z	500	21	1	24.5	24.5	-0.9
08508	00	Z	500	27	0	14.2	18.0	11.0
08508	12	Z	500	27	0	22.4	23.5	7.3
08594	12	Z	500	21	0	9.9	17.6	14.5
60020	00	Z	500	25	0	14.6	23.9	19.0
60020	12	Z	500	24	0	11.1	17.9	14.1
71600	00	Z	500	27	0	10.6	10.7	1.4
71600	12	Z	500	27	0	14.3	14.4	-1.7
72201	00	Z	500	28	0	10.3	11.2	4.5
72201	12	Z	500	26	0	9.4	10.6	4.9
72304	00	Z	500	27	0	14.9	15.0	1.9

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72304	12	Z	500	27	0	9.4	9.9	3.3
72402	00	Z	500	27	0	13.6	15.9	8.1
72402	12	Z	500	27	0	9.1	11.6	7.2
72606	00	Z	500	27	0	13.2	14.1	-4.9
72606	12	Z	500	27	0	13.3	13.3	-0.6
74494	00	Z	500	27	0	14.9	15.5	-4.4
74494	12	Z	500	26	0	16.4	16.9	-4.2
78016	12	Z	500	22	0	13.5	21.9	17.2

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	6	0	0	0.0	-1.9	-0.5
DBBH	12	V	100	16	0	6	0.0	-3.6	0.0
DBRH	00	V	100	1	0	0	4.4	4.8	1.9
DDBH	00	V	100	1	0	0	4.4	4.8	1.9
FNOR	00	V	100	10	0	0	4.4	-1.2	0.7
FNOR	12	V	100	11	0	0	2.9	-2.6	-0.7
FNOU	00	V	100	10	0	0	5.5	-0.4	-0.5
FNOU	12	V	100	12	0	0	2.7	-0.6	0.5
FNPH	00	V	100	11	0	0	3.6	0.8	-0.5
FNPH	12	V	100	12	0	0	3.6	-1.1	0.9
FNRS	00	V	100	9	0	0	2.6	-1.4	1.3
FNRS	12	V	100	10	0	0	2.6	-0.5	-2.5
GACA	00	V	100	23	0	0	3.9	-0.5	-2.1
GACA	12	V	100	23	0	0	2.9	0.4	-2.1
LDWR	00	V	100	27	0	0	3.6	1.0	-1.3
LDWR	12	V	100	26	0	0	3.3	0.2	-2.4
OXYL	00	V	100	11	0	0	2.8	0.5	-0.4
OXYL	12	V	100	14	0	0	2.1	-0.7	-0.7
OZJP	00	V	100	12	0	8	2.0	-0.9	-0.6
OZJP	12	V	100	13	0	0	3.0	0.2	-0.1
P3OO4	00	V	100	14	0	0	3.2	1.8	-1.6
P3OO4	12	V	100	11	0	0	4.4	-0.5	-0.7
SHIP	00	V	100	3	0	33	3.4	4.3	-5.7
SHIPAA	00	V	100	3	0	0	3.4	2.8	-1.7
SHIPAA	12	V	100	5	0	0	3.4	0.3	2.6
V2LV	00	V	100	21	0	0	2.3	0.5	-2.9
V2LV	12	V	100	22	0	0	5.5	-2.2	-2.3
V2LX	00	V	100	18	0	0	5.4	-0.5	-0.6
V2LX	12	V	100	17	0	0	4.9	-3.5	-0.5
V8LX	00	V	100	1	0	0	5.6	8.9	-1.5
ZCAW6	00	V	100	13	0	0	5.6	-1.5	-2.2
ZCAW6	12	V	100	17	0	0	4.1	-1.7	-1.2
03953	00	V	100	25	0	0	2.6	-0.3	-0.8
03953	12	V	100	24	0	0	3.0	-0.7	-2.0
04018	00	V	100	20	0	0	3.7	-0.2	-0.9
04018	12	V	100	26	0	0	3.3	0.0	-2.4
04220	00	V	100	25	0	0	3.0	-0.4	0.5
04220	12	V	100	26	0	0	3.5	-1.0	-1.0
04270	00	V	100	24	0	0	2.5	-0.2	0.4
04270	12	V	100	25	0	0	3.6	-0.4	-0.6
04339	00	V	100	25	0	0	5.4	-0.4	-0.9
04339	12	V	100	25	0	0	3.5	-2.0	-2.9
04360	00	V	100	25	0	0	3.5	-0.3	0.7
04360	12	V	100	25	0	0	3.7	-2.1	-0.8
08001	00	V	100	23	0	0	3.2	1.5	-1.2
08001	12	V	100	21	0	0	3.9	-0.5	-1.4
08508	00	V	100	26	0	0	3.9	-1.3	0.7
08508	12	V	100	26	0	0	3.4	-4.6	1.2
08594	12	V	100	21	0	0	5.6	-6.0	1.9
60020	00	V	100	25	0	0	3.5	-0.1	1.7
60020	12	V	100	24	0	0	3.6	-5.2	2.4
71600	00	V	100	26	0	7	2.8	-3.0	0.2
71600	12	V	100	25	0	0	6.5	-0.5	0.3
72201	00	V	100	27	0	0	2.7	1.1	0.3
72201	12	V	100	25	0	0	3.8	1.3	0.7
72304	00	V	100	20	0	0	7.0	-0.7	1.5
72304	12	V	100	22	0	4	6.0	-4.2	0.3
72402	00	V	100	17	0	0	4.7	-0.3	-0.4
72402	12	V	100	22	0	0	3.3	-1.9	0.3
72606	00	V	100	15	0	0	4.8	1.4	2.3

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72606	12	V	100	13	0	0	4.1	-1.8	0.2
74494	00	V	100	19	0	0	3.6	-2.1	1.9
74494	12	V	100	21	0	0	4.1	-1.4	1.5
78016	12	V	100	9	0	0	5.5	-1.8	-2.0

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	6	0	0	0.0	-4.1	-2.3
DBBH	12	V	500	16	0	0	0.0	-1.2	-3.0
DBRH	00	V	500	1	0	0	4.8	-7.3	1.9
DDBH	00	V	500	1	0	0	4.8	-7.3	1.9
EKOF	00	V	500	1	0	0	4.8	0.5	-0.7
FNOR	00	V	500	11	0	0	4.8	-0.7	-0.4
FNOR	12	V	500	11	0	0	2.9	-2.9	-0.8
FNOU	00	V	500	11	0	0	5.3	-0.2	-0.1
FNOU	12	V	500	12	0	0	4.6	-1.8	-2.5
FNPH	00	V	500	11	0	0	3.6	-0.6	-0.7
FNPH	12	V	500	12	0	0	2.6	0.5	0.6
FNRS	00	V	500	9	0	0	3.6	-0.9	0.3
FNRS	12	V	500	10	0	0	3.6	-1.0	2.1
GACA	00	V	500	23	0	4	3.3	-0.5	-1.6
GACA	12	V	500	22	0	0	6.4	-0.9	0.5
LDWR	00	V	500	27	0	0	3.7	0.7	0.4
LDWR	12	V	500	27	0	0	3.9	-0.3	-0.6
OXYL	00	V	500	12	0	0	3.2	2.4	1.4
OXYL	12	V	500	15	0	6	3.7	2.4	3.4
OZJP	00	V	500	13	0	15	6.8	-3.4	-0.4
OZJP	12	V	500	14	0	0	6.9	-0.9	-2.1
P3004	00	V	500	15	0	0	5.7	1.7	-0.1
P3004	12	V	500	13	0	0	5.2	2.4	1.0
SHIP	00	V	500	4	0	0	4.9	1.3	-3.4
SHIP	12	V	500	4	0	0	4.9	-0.8	3.5
SHIPA	00	V	500	2	0	0	4.9	2.4	-4.6
SHIPAA	00	V	500	7	0	0	4.9	-1.9	1.4
SHIPAA	12	V	500	8	0	0	4.9	-0.9	-1.0
V2LV	00	V	500	23	0	0	4.4	0.3	0.8
V2LV	12	V	500	22	0	0	4.2	-0.4	-1.4
V2LX	00	V	500	20	0	0	3.1	-0.2	1.6
V2LX	12	V	500	17	0	0	3.5	-0.5	-0.3
V8LX	00	V	500	1	0	0	2.5	3.4	0.9
WTEA	00	V	500	1	0	0	2.5	4.8	1.4
ZCAW6	00	V	500	15	0	0	2.5	-2.4	-1.1
ZCAW6	12	V	500	16	0	0	5.0	-4.8	0.7
03953	00	V	500	26	0	0	3.8	-0.3	1.0
03953	12	V	500	25	0	0	4.9	-1.1	-0.3
04018	00	V	500	27	0	0	5.4	-0.6	0.1
04018	12	V	500	27	0	0	5.1	-0.9	-1.7
04220	00	V	500	25	0	0	4.9	0.5	-1.7
04220	12	V	500	26	0	0	3.7	-0.5	-0.1
04270	00	V	500	25	0	0	4.7	0.0	2.0
04270	12	V	500	24	0	0	3.8	-1.2	-1.7
04339	00	V	500	26	0	3	5.6	-1.1	0.3
04339	12	V	500	25	0	0	5.3	-1.0	-1.1
04360	00	V	500	25	0	4	3.7	0.9	2.3
04360	12	V	500	26	0	0	5.5	-1.0	1.1
08001	00	V	500	25	0	0	4.4	0.0	1.6
08001	12	V	500	22	0	0	5.3	0.8	-0.1
08508	00	V	500	27	0	0	3.8	1.6	-0.3
08508	12	V	500	27	0	0	4.5	-1.6	2.2
08594	12	V	500	21	0	4	4.4	-4.9	-3.0
60020	00	V	500	25	0	0	3.1	-0.4	-1.1
60020	12	V	500	24	0	0	4.1	-2.3	-0.8
71600	00	V	500	26	0	0	3.6	0.4	0.4
71600	12	V	500	25	0	4	4.8	2.0	2.4
72201	00	V	500	28	0	0	4.3	0.2	1.1
72201	12	V	500	26	0	0	2.9	-0.5	-0.5
72304	00	V	500	27	0	0	3.9	-1.1	1.2

```
  WMO   OBS                NUM    NUM     %
IDENT  TIME  ELM   LEV     OBS   GROSS   REJ     RMS    UBIAS   VBIAS

72304   12    V    500     26      0      0      2.7    -1.0     1.2
72402   00    V    500     25      0      0      3.7     1.4     0.4
72402   12    V    500     26      0      0      5.0     0.2     0.5
72606   00    V    500     27      0      0      3.9    -2.5     0.2
72606   12    V    500     27      0      0      4.1    -2.4     0.7

74494   00    V    500     26      0      0      3.9    -1.2     0.8
74494   12    V    500     26      0      0      3.7    -0.7     1.8
78016   12    V    500     22      0      0      4.4     1.6    -0.6
```

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 4,9 and 10 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	300
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 4 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 5,11 and 12 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45